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THE CIRCUMPLEX MODEL

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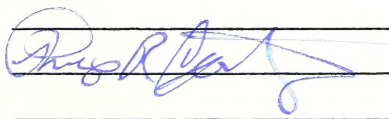
Karen Ann Sox

Department of Psychology
Duke University

Date: _____

Approved:

Robert C. Carson, Supervisor



Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctor
of Philosophy in the Department of
Psychology in the Graduate School
of Duke University

ABSTRACT

(Psychology-Clinical)

RECIPROCITY IN INTERPERSONAL PERCEPTION AND
BEHAVIOR: AN ANALYSIS BASED ON
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An abstract of a dissertation submitted in partial
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of Doctor of Philosophy in the Department of
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Duke University

1982

ABSTRACT

KAREN ANN SOX Reciprocity in Interpersonal Perception and Behavior:
An Analysis Based on the Circumplex Model (Under the direction of ROBERT
C. CARSON).

Four general hypotheses derived from Carson's theory of interpersonal relations were investigated within the context of Leary's circumplex model of interpersonal style. Eight audio tapes were constructed, each representing a different interpersonal style and portraying one side of a conversation with a male stimulus figure. Forty-four male college undergraduates and 33 male psychiatric inpatients conversed with each tape. They rated their impressions of the figures and their behavior was evaluated with respect to the hostile-friendly and dominance-submission dimensions.

The first hypothesis concerned the relationship between participants' perceptions and behaviors. As predicted, perceptions of dominance in others were associated with behavioral submissiveness and vice-versa. Friendly perceptions were linked with behavioral sociability, while hostile ones were associated with hostility. Friendly perceptual biases were positively correlated with behavioral sociability in patients, but surprisingly, they were negatively correlated with sociability in students.

The second hypothesis dealt with the responses elicited by different, objectively evaluated, stimulus behaviors. Friendliness was again found to elicit friendliness, while hostility provoked hostility. Dominance induced submission and vice-versa. Contrary to predictions, hostile figures

elicited more between-subjects variability with respect to hostility-friendliness than friendly ones. Dominant figures, as anticipated, did elicit more variability than submissive ones, but only inconsistently and the robustness of this relationship was seriously questioned.

The third hypothesis focused on the relationship between perceptual accuracy and interpersonal style. Perceptual accuracy was not related to interpersonal style, but post-hoc analyses indicated friendliness in interpersonal style and perceptual accuracy in general were both related to the participant's status as a patient or a student. Compared to the students, the patients were less friendly and less accurate.

The final hypothesis dealt with anticipations regarding one's future interactions. Affiliativeness in interpersonal style was expected to be positively correlated with anticipations of friendly figures and negatively correlated with anticipations of hostile ones. Increased dominance in interpersonal style was expected to be positively associated with anticipations of submissive figures and negatively associated with anticipations of dominant ones. This hypothesis was not supported. Instead, anticipations were strongly and positively related to the friendliness of the stimulus figures.

To

Tom and Adrian

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PART I

INTRODUCTION

CHAPTER 1

THE PERSON VERSUS THE SITUATION: IDENTIFYING THE DETERMINANTS OF INTERPERSONAL BEHAVIOR

Traits, Situations, or Interactions? A Theoretical and Methodological Controversy

Psychologists have recently witnessed a heated debate regarding the determinants of interpersonal behavior (e.g., Endler & Magnusson, 1976; Magnusson & Endler, 1977). Two opposing theoretical models were proposed. The situational model argued the most important source of behavioral variability could be found in the environment. As environmental conditions changed, so did behavior, due to people's sensitivity to fluctuating reinforcement contingencies. Many experiments were conducted to demonstrate this phenomenon, and clearly, the situationists argued, the environmental manipulations caused the observed changes in behavior. The responses of persons in identical roles and circumstances were considered to be more similar than different. The emphasis was on people's discriminative abilities, their flexibility, and their adaptiveness to changing contingencies. Even values such as altruism and honesty were assumed to be situationally specific and mysteriously linked to more basic primary reinforcers.

But proponents of the other model, the trait model, elected the individual as the most important source of behavioral differences. Since the enduring biological uniqueness of each individual was accepted

without question, it seemed logical to assume people were psychologically unique as well. Obviously, these theorists argued, consistent individual characteristics in behavior are clearly evident, regardless of the environmental circumstances, the time that has elapsed, or the specific social role requirements. Continuity had to be present, or we could never know each other as individuals and relationships would not endure. If people were not uniquely different, selectivity in friendships, marital choices, or in personnel employment would also be absolutely unnecessary. There was emphasis on the human capacity to pursue long-term plans and live by ethical ideals. But learning and personality change were not readily explained.

It should be noted that none of the participants in this debate seriously questioned the fact that neither model could account for all the variability in behavior. Instead they debated which model accounted for the significant effects and which should be relegated to the dubious position of "error variance." Since theories are tested with data, the standard methodology of each approach was naturally subjected to intensive scrutiny by members of the opposing team. In the attack on situationism, championed by Bowers (1973), situationists were accused of approaching the problem from the theoretical biases of the "actor" (E. E. Jones & Nisbett, 1972). They were noted to assume, sometimes incorrectly, that their observed stimuli "caused" their observed responses (Bowers, 1973; McGuire, 1973). Another common fallacy was the assumption that "behavior which is acquired and maintained is reinforced" (Bowers, 1973, p. 311), despite evidence to the contrary, such as the acquisition of language or instinctual drift (Breland & Breland, 1961). As subjects, experimentalists typically selected college students--people

who were well known for their sensitivity and responsiveness to environmental contingencies--especially since their academic achievement depended upon it (Alker, 1972; Wachtel, 1973). Situationists were also criticized for focusing on easily observed and sometimes trivial concrete phenomena as their stimuli and responses (Wachtel, 1973). Their experimental methodologies enhanced situational effects while remaining selectively blind to individual consistencies (Cronbach, 1957; Wachtel, 1973). They designed their experiments "not to test hypotheses . . . but to demonstrate their obvious truth" (McGuire, 1973, p. 448). And if by some fluke they still failed to obtain significant results, the situationists, it was proclaimed, did not proudly publicize their studies as prime examples of the consistency of behavior. Instead, they failed to publish them at all, under the assumption that if behavior didn't change, then the situation didn't change either (Bowers, 1973).

The trait theorists were also criticized on the basis of their techniques, especially by Mischel (1969, 1973, 1977). The most serious criticism was that their correlation coefficients were typically only around .2 or .3 and thus explained less than ten percent of the variance. Trait theorists, meanwhile, defended themselves against this observation by arguing they had not yet perfected their methodology. Instead, their correlation coefficients were attenuated by problems with test-retest reliabilities, errors of measurement, restricted samples and the fact that the power of multivariate techniques and moderator variables was just being discovered (Alker, 1972; Argyle & Little, 1972; Hogan, DeSoto, & Solano, 1977). In addition, trait theorists maintained optimum means for measuring traits had not yet been developed (Argyle & Little, 1972; Bem & Allen, 1974; Harris, 1980; Kenrick & Stringfield, 1980). The

phenomena studied by correlationists, which often consisted of ambiguous affects and complex interpersonal behaviors, were much more difficult to study and quantify than concrete observable responses (Wachtel, 1973). Another justification was the genotypic-phenotypic model, which maintained the same trait could be expressed through a large variety of manifest behaviors (Alker, 1972; Atkinson, 1981; Bowers, 1977; McGowan & Gormly, 1976; Mischel, 1969, 1973; Wachtel, 1973). There were also debates about the definition of consistency (Alker, 1972; Argyle & Little, 1972; Bem & Allen, 1974) and the observation that any given behavior would probably be determined by a variety of traits, not just one (Argyle & Little, 1972).

But the criticism of trait theories continued on other methodological grounds as well. It was noted that trait theorists were subject to the perceptual biases of the "observer" (Argyle & Little, 1972; E. E. Jones & Nisbett, 1972; Mischel, 1969, 1973). Their subjects were more likely to be mental patients who exhibited less flexibility in their behavior than normals (Alker, 1972; Wachtel, 1973). Their research designs emphasized behavioral consistency while minimizing the effects of variability (Cronbach, 1957). Moderator variables were not working as well as researchers hoped they would (Epstein, 1980; Mischel, 1973; Wallach & Leggett, 1972). Clinician's judgments were unreliable (Mischel, 1973). Some researchers (Argyle & Little, 1972; Mischel, 1973) stated the obtained correlations between trait measures may really be the result of common response sets rather than the presence of common traits. And Mischel (1969, 1973) argued what was often interpreted as test unreliability or other methodological problems was really evidence for trait instability.

As the debate became more heated and statisticians' techniques more sophisticated, a number of researchers, through the use of analysis of variance, designed studies in which it was possible to partition the total variance into situational and individual effects (Ekehammar, 1974). They found the individual and the environment each accounted for small proportions of the overall variance. In general, the person by situation interactions accounted for much more variance. In some cases they were greater than the sum of the main effects, which indicated the effects of these interactions were not merely additive (Alker, 1972; Argyle & Little, 1972; Bowers, 1973, 1977; Carson, 1975, 1979; DeVoge & Beck, 1978; Ekehammar, 1974; Endler, 1973; Endler & Hunt, 1969; Endler & Magnusson, 1976; Golding, 1975a, 1975b, 1977; Mariotto, 1978; Mischel, 1973; Moos, 1968; Raush, 1965; Raush, Dittmann & Taylor, 1959b; Sarason, Smith, & Diener, 1975; Wachtel, 1973; Wallach & Leggett, 1972). Although there was some disagreement about the proper method of analyzing the percentage of variance attributable to each source (Golding, 1975a), the robustness of person by situation interactions was no longer questioned (Carson, 1975, 1979; DeVoge & Beck, 1978; Golding, 1975; Sarason, Smith, & Diener, 1975).

A more difficult problem lay in their interpretation. A number of researchers noted it was possible, through the use of appropriate subjects and experimental methodologies, to maximize either person or situational effects relative to each other (Argyle & Little, 1972; Bowers, 1973; Carson, 1975, 1979; Cronbach, 1957; Ekehammar, 1974; Endler & Magnusson, 1976; Epstein, 1977, 1979; Mischel, 1973; Olweus, 1977). Thus, person effects could be enhanced by maximizing the variability among subjects and minimizing the variability among situations. Situational effects could be enhanced by selecting homogeneous subjects and heterogeneous

events. Likewise, the relative strength of person by situation interactions could be experimentally manipulated. Meanwhile, the interactions themselves could be interpreted as support for either the person or the situationist point of view (Bowers, 1973; Carson, 1975, 1979; Dworkin, 1979; Olweus, 1977). Thus, trait theorists, by invoking the genotypic-phenotypic model, could argue the behavioral expression of the trait would depend upon the particular situation. Situationists could account for these interactions on the basis of idiosyncratic reinforcement histories.

Situational Resolutions

But although the recognition of person-situation interactions failed to resolve the controversy between situationists and personologists, both sides benefited. To begin with, the theorists and researchers were forced to reconsider their theoretical and methodological biases (McGuire, 1973). Situationists, such as Mischel, began to give serious consideration to the role of cognitions in the determination of behavior, instead of relegating them to the status of "mere mental way stations" (Bowers, 1973). In a 1969 paper which basically argued in favor of behavioral specificity and against the use of traits as explanatory constructs, Mischel did acknowledge the existence of individual consistency on cognitive dimensions. He wrote:

There is a great deal of evidence that our cognitive constructions about ourselves and the world--our personal theories about ourselves and those around us (both in our roles as persons and as psychologists)--often are extremely stable and highly resistant to change. Data from many sources converge to document this point. Studies of the self-concept, of impression formation in person perception and in clinical judgment, of cognitive sets guiding selective attention--all these phenomena and many more document the consistency and tenacious continuity of many human construction systems. (Mischel, 1969, pp. 1012-1013.)

By 1973, Mischel had elaborated these thoughts into a "cognitive social learning reconceptualization of personality" which gave a prominent role to one's ability to construe accurately, to encoding strategies and personal constructs, to behavior-outcome and stimulus-outcome expectancies, to subjective stimulus values, and finally, to self-regulatory systems and plans (Mischel, 1973). Not only were these cognitive systems interdependent, but it was clearly evident that Mischel believed they exerted enormous influences on social behavior.

Although the literature is too extensive to be reviewed in detail here, other researchers have further expanded and explored Mischel's concepts, generally with positive results. "Cognitive prototypes," for example, represent encoding strategies which now have solid bases of experimental evidence to support them. Thus, a number of studies have shown that people tend to organize information in terms of characteristics normally associated with basic categories or stereotypes (Brewer, Dull, & Lui, 1980; D. M. Buss & Craik, 1981; Cantor & Mischel, 1977; Horowitz, French, Lapid & Weckler, 1982; M. Snyder & Cantor, 1980). In general, stereotypic information seems to be learned and recalled more readily than information which is inconsistent with the stereotypes.

Abelson's script concepts are also relevant to Mischel's variables, and appear to be associated closely with stimulus-outcome expectancies. While prototypes typically refer to stereotypic stimulus objects or persons, scripts refer to the routines and expectancies associated with stereotypic situations. Thus, in Abelson's (1981) example, when people enter a restaurant, they expect certain things to happen and to engage in certain sequences of behavior. Although the research in this area is still extremely preliminary, it does suggest that knowledge about typical

situations is organized in such a manner.

Bandura (1980) has recently focused his attention on behavior-outcome expectancies in the form of "self perceived efficacy." Defined as "judgments of how well one can execute courses of action required to deal with prospective situations" (p. 122), he reported it helped explain a wide variety of responses, including coping behavior, level of physiological stress, efforts to change maladaptive behavior, and response to failure.

Affective variables, meanwhile, have also earned recognition as intrapersonal variables which seem to mediate environmental influences on behavior. Zajonc (1980), for example, reported that affective judgments can be made in the absence of cognitions; they are also made more quickly than cognitions and with greater confidence. Bower (1981) presented experimental evidence indicating affect plays a substantial role in the cues people attend to, in what gets learned, and in recall as well. He further offered the speculation that moods can be self-perpetuating. Thus, affect, as well as cognition, could be a relatively stable variable playing a determinative role in subsequent behavior. Such an idea, of course, would not be surprising to most personologists. Indeed, Thomas, Chess, and Birch (1970) noted distinctive and persistent temperamental differences in infants shortly after birth.

Another strategy evolved from the realization, also acknowledged by personologists and interactionists, that people are not equally responsive to situational cues (Alker, 1972; Argyle & Little, 1972; Bem & Allen, 1974; Ekehammar, 1974; Endler, 1973; Endler & Hunt, 1969; Kenrick & Stringfield, 1980; Mariotto, 1978; Markus, 1977; Mischel, 1973; Moos, 1968; Raush, Dittmann & Taylor, 1959b; M. Snyder, 1974; M. Snyder &

Cantor, 1980). The "Self Monitoring-Scale" (M. Snyder, 1974) was thus developed to discriminate between people on the basis of this dimension. According to M. Snyder and Cantor (1980), for example, "high self-monitors" are more knowledgeable about general trait prototypes than about their own individual characteristics; in addition, high self-monitors purportedly engage in counter attitudinal behaviors more readily than "low self-monitors." On the other hand, low self-monitors are thought to be more knowledgeable about their own characteristics than about general prototypes, and to engage in proportionally fewer situationally appropriate behaviors.

Personality Resolutions

Personologists, meanwhile, have changed their approach to studying individual consistency. Some have questioned the usefulness of trait constructs, and have searched for consistency in behavior instead. Others still believe in traits, but have changed their conceptualization of them, as well as their methods of measurement. Although some of these methods--Lamiell's (1981), for example--merely amounted to a redefinition of the criterion of consistency (Wittig, 1982), others--as will be noted later--have shown promising results. Finally, some have shifted the focus from trait terms, which summarize what the person is, to motivation terms centered on individual goals.

Thus, although Wallach once embraced the use of moderator variables (Wallach & Leggett, 1972), he now disputed it:

it seems time to emphasize that the search for consistency does not stand or fall with the finding of evidence for traits or dispositions. The demonstrated elusiveness of such evidence tells us not that people are inconsistent but rather that constructs of the kind considered don't seem to be useful conceptual entities. Whether people manifest consistency remains to be seen--by focusing not on test

responses which are of interest only if they function as signs of some hypothetical trait or other, but rather on behaviors and effects of behavior that are of interest in their own right. In the case of such behaviors and behavioral effects we can ask, quite straightforwardly, whether persons exhibit relative constancy in producing them across varying occasions. (Wallach & Leggett, 1972, p. 314.)

By studying children's drawings collected on repeated occasions, Wallach and Leggett (1972) succeeded in identifying individual stylistic differences which persisted across the occasions.

Epstein (1977, 1979, 1980) followed this with a number of studies in which a variety of responses--physiological, affective, and behavioral--were also measured on repeated occasions. By aggregating across occasions, in which, for example, he compared the mean of each person's responses on the even-numbered days with the mean of the corresponding responses on the odd-numbered days, he was able to report high levels of stability in behavior.

McGowan and Gormly (1976) aggregated trait ratings obtained from peers, responses to interview questions, and naturalistic observations of behavior. Since there was aggregation with respect to each of the three types of data, they too reported moderately high intercorrelations. Similar results were also obtained by Moskowitz and Schwarz (1982), who, in a study of children's dominance and dependency, used both multiple ratings obtained from teachers and behavioral observations aggregated across occasions.

And despite using a trait approach instead of a behavioral one, Harris (1980) also realized higher than average stability coefficients. In this case, the aggregation took place across measurement procedures, which consisted of both self-ratings and ratings by others.

The success of these researchers, of course, is obvious when one

considers their results as Epstein (1977, 1979, 1980) did, in terms of statistical theory: The larger the sample of items, the more stable (less variable) the mean of that sample, and the higher the probability of obtaining a mean which is close to the true population value. Aggregation thus reduces error variance and enhances generalizability. But classical psychological experimentation has relied on large samples of people and miniscule samples of stimulus situations, responses, and occasions. Consequently, there has traditionally been aggregation across people, but none with respect to the other variables.

Another fruitful approach stemmed from the recognition that not all people are equally situationally consistent, or, in other words, not all traits apply to all people. This has led to the combined use of idiographic and nomographic procedures in which attempts are made to separate those who are consistent with respect to a trait from those who are not. In contrast to the use of the Self-Monitoring Scale, personologists have typically approached this issue by obtaining self-ratings of variability as well as one's central tendencies with regard to the traits being investigated. People who report low cross-situational variability, claim the trait is important to their self concept, and/or report their expressions of the trait are easily observed by others have all been found to exhibit more trait-related stability on self-ratings, peer ratings, laboratory tasks, and semi-natural behavior than people who do not (Bem & Allen, 1974; Kenrick & Stringfield, 1980; Markus, 1977). In addition, prototypical behaviors have demonstrated more reliability than ones which are only peripherally related to the trait construct (D. M. Buss & Craik, 1981). Since low variability and easy measurement enhance reliability, these results are also not surprising when considered in the

context of measurement theory. It is significant, however, that self-ratings can be used so effectively as moderating variables (Kenrick & Stringfield, 1980).

Like their situational counterparts who appreciated the importance of affects and cognitions, personologists have also begun to consider intrapersonal processes. Hogan et. al. (1977), for example, stated "the most important consistencies will be found in the goals people pursue rather than in the means they use to achieve them" (p. 258). Atkinson (1981) conceptualized personality in terms of motivations rather than traits. Different people would differ in the mean intensity of the various motivations, such as achievement or affiliation. However, each individual's motivations would wax and wane even in the presence of a constant environment. The most intense motivation would be the one expressed in observable behavior at any particular point in time. For Atkinson, behavior was consummatory; it would temporarily satisfy the motivation, much as eating satiates hunger. This would allow the first motivation to wane and another to achieve prominence. Thus, behavioral variability was not dependent upon situational elicitors and coexisted with continuity in the individual's mean motivational state. A computer simulation of Atkinson's model even produced correlation coefficients similar to those typically found in person-based personality experiments (Atkinson, 1981).

A somewhat similar model was proposed by Powers (1973) in his attempt to explain the functioning of the human brain. In this model, the principle goal of the brain, or at least the higher-order systems of it, was the maintenance of homeostasis. Whenever the brain perceived an imbalance between its current state and certain "reference conditions,"

corrective forces were mobilized to regain the perception of homeostasis. Often these forces would take the form of behaviors organized around specific goals such as the elimination of hunger or the correction of a drop in self-esteem. However, Powers also noted behavior was not the only means of altering the perception of imbalance. Other methods might include selective attention, a change in the reference condition, or altered states of consciousness. Like Atkinson's model, behavioral variability would be found even in the absence of environmental changes. This does not mean the environment would not influence behavior, both Atkinson (1981) and Powers would maintain that it does. But stable individual differences would also be maintained, not in the form of traits, but in the form of individually specific reference conditions. As cogently noted by Bowers (1977, p. 67), "variability in overt behavior preserves an underlying stability."

Interactional Resolutions: Reciprocal Determinism

The methodological discovery of the importance of person by situation interactions gave new impetus to a general theory which was not new in psychology and had existed even longer in philosophy and the physical sciences (Carson, 1975, 1979; Ekehammar, 1974; Golding, 1975b). In philosophy, interactionism can be traced to Aristotle, and in psychology, Ekehammar (1974) followed it through the writings of Kantor, Koffka, Lewin, Tolman, Angyal, Murray, Murphy, Jessor, Helson, Sullivan, and others. Since then, Golding (1975b) has added the names of Jean Piaget and George Kelley, while Nygård (1981) added J. W. Atkinson. But despite this wide theoretical base, the experimental investigation of person by situation interactions was emphasized only recently. According to Ekehammar (1974),

this was because the essential analytical methodologies were not yet developed.

Although they could be treated as simply the interaction of person effects and environmental ones, many recent psychologists, like their predecessors, have chosen direct interpretations of the interactions themselves (e.g., Benjamin, 1974; Bowers, 1973; Carson, 1975, 1979; DeVoge & Beck, 1978; Ekehammar, 1974; Endler & Magnusson, 1976; Golding, 1975b, 1977; Mischel, 1973, 1977, 1979; Olweus, 1977; M. Solomon, 1981). Central to these theories is the distinction between the physical environment, or objective reality; and the psychological environment, which refers to the individual's subjective perception of the surroundings. Some degree of correspondence between the physical and psychological environments is recognized, but they are not considered identical. What the individual perceives is not believed to be reality as it exists, but a distortion of that reality, and frequently one which is not shared by others in the same objective circumstances. While some aspects of these perceptions may be consensual, others are assumed to be idiosyncratic. Ultimately, these idiosyncratic differences in perception and construal would lead to idiosyncracies in overt behavior. Statistically, they would then be manifested as person by situation interactions.

Beyond this general agreement, the field of interactional psychology has been lacking in conceptual clarity. Where some authors write about "persons," others discuss "cognitions" or "perceptions." In either case, the emphasis seems to be on idiosyncratic conceptualizations arising from one's previous experiences with the environment. At the molecular level of specific responses, they adopt the form of specific perceptions. On the broadest levels, they are linked together into organized conceptual

systems and response tendencies.

Even more bewildering is the variety of different ideas which have been attached to the term "interaction," although here an evolutionary approach seems to put things into better perspective. In the trait model, behavior was a function of the person, $B = f(P)$ (A. R. Buss, 1977); while the situationists maintained the environment controlled behavior, $B = f(E)$ (A. R. Buss, 1977). Some of the "transitional" models focused directly on the relationship between the individual and the environment. The "pure cognitive" position, for example, emphasized idiosyncratic perception of the environment, $E = f(P)$; while the social learning position maintained the environment shaped the person, $P = f(E)$ (A. R. Buss, 1977; Olweus, 1977).

The interactional positions considered all three variables, but did so in a variety of ways. In the analysis of variance model of interaction, behavior was a multiplicative function of the person and the environment, that is, $B = f(P \times E)$ (Olweus, 1977). The "unidirectional" or "mechanistic" model also considered behavior to be a function of the person and the environment, but the relationship was not necessarily a multiplicative one, $B = f(P, E)$ (Bandura, 1978; Bowers, 1977; A. R. Buss, 1977; Nygård, 1981; Olweus, 1977). In another model, behavior was a function of one's perceptions and the environment, but there was also interdependence between the latter two variables, $B = f(P \leftrightarrow E)$ (Bandura, 1978).

The remaining "bidirectional" interactional models have introduced even more confusion by rendering the distinction between the independent and dependent variables irrelevant, since they focused on reciprocal relationships (McGuire, 1973). Even here, however, the variables have been grouped in a number of different ways. Olweus (1977) discussed them

in terms of a reciprocal relationship between behavior and the environment, $\underline{E} \leftrightarrow \underline{B}$. Bowers (1977) presented it as environmental feedback affecting perceptions and behaviors, which in turn influence the environment, $\underline{E} \leftrightarrow (\underline{P}, \underline{B})$. In Nygård's (1981) model, the person and environment reciprocally interact with behavior, $\underline{B} \leftrightarrow (\underline{P}, \underline{E})$. And finally, in Bandura's (1978) model of "reciprocal determinism," there were reciprocal relationships between the environment, perception, and behavior; $\underline{B} \leftrightarrow \underline{P} \leftrightarrow \underline{E}$.

Although most theorists and researchers have not explicitly addressed, as Bandura (1978) did, reciprocal interactions between all three variables, such relationships do appear to be consistent with the vast majority of the work in this area. In particular, this author found no evidence of anyone arguing against the existence of bidirectional relationships between each of these variables. The differences in these models, therefore, seems to have arisen not from disagreement about the basic nature of human behavior, but from the difficulty of adequately accounting for its complexity. Consequently, while the theorists, including the current author, generally adhere to a reciprocal model of behavior; much of the research, including the current study, has been limited to a unidirectional consideration of these relationships. In this study, for example, the influence of perceptions and behaviors on the environment were not considered. This was not because they are insignificant, but because our ability to develop theories is greater than our ability to effectively test them. Experimental investigations also necessitate the control of some variables in order to properly examine the effects of others.

In any case, the presence of reciprocal interactions between persons, environments, and behaviors is widely accepted. Among humans, the most

significant feature of an individual's environment is the social behavior of others (e.g., Anchin & Kiesler, 1982; Bowers, 1973; Carson, 1969, 1975, 1979, 1982; Cashdan, 1973, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Kelley & Stahelski, 1970; Leary, 1957; Spiegel, 1957; Wachtel, 1973, 1982; Watzlawick, Beavin, & Jackson, 1967). In general, people readily acknowledge the influence of others on their own thoughts, feelings, and behavior. Equally powerful, but less readily recognized, is the impact of their own behavior on others. People do not just passively respond to circumstances, but create them as well. They choose the people they associate with; they influence the behavior of others by adjusting their own. As Wachtel (1973) noted:

we must ask why for some people the situation is so rarely different. How do we understand the man who is constantly in the presence of overbearing women, or constantly immersed in his work, or constantly with weaker men who are cowed by him but offer little honest feedback? Further, how do we understand the man who seems to bring out the bitchy side of whatever woman he encounters, or ends up turning almost all social encounters into work sessions, or intimidates even men who usually are honest and direct?

Elaborating this theme even further, Watzlawick, Beavin, and Jackson (1967) characterized relationships as "feedback loops" in which reciprocal behaviors were adjusted to sustain the relationship, to maintain "homeostasis." All behavior, they argued, is informative. It is impossible not to communicate, since even by silence one is communicating something about the nature of the relationship. And in every communicational sequence "every exchange of messages narrows down the number of next possible moves" (p. 131). This sequence, particularly in relationships which have become stabilized over time, becomes circular in nature, with each person's response serving as the stimulus for the other. Because of this, these authors believed it was essential to study behavior in the

context in which it occurred. Similar ideas about reciprocal interactions have also been presented by interpersonal theorists. Their analyses will be further explored in later sections of this dissertation.

Summary

In conclusion, the controversy surrounding persons and situations had three major effects. First, it forced researchers to pay more attention to their theoretical and methodological biases. Situationists now attend to the individual's cognitions and affects, and accept the principle that not all people are equally responsive to situational cues. Personologists have begun to abandon the conception of traits in favor of searching for other forms of consistency, such as people's actual behaviors, or their goals and motivations. They have also used more complex and less naive methodological procedures. Second, the controversy has led many researchers to attempt direct interpretations of the person by situation interactions; to re-examine old theories and draw old distinctions between the physical and psychological environments; to give more consideration to the idiosyncratic organization of behavior. And third, the controversy has resulted in more speculation and exploration of the reciprocal relationships between perceptions, behaviors, and the environment. It can be concluded that interpersonal behavior is determined by both the person and the situation. But beyond that, interpersonal behavior can also be found to modify situational, and less obviously, personality variables. These interdependent processes will be further explored in later chapters.

This controversy has also affected the research which will be presented here. Since the existence of person by situation interactions

was already widely recognized, this study attempted to explore the mechanisms by which they occurred. Attention was given to the perceptions and constructions individuals make regarding the behavior of others, the effects these constructions have on their own behavior, and the manner in which their behavior is influenced by the social environment. First, however, it is necessary to consider some of the research which has already been done.

CHAPTER 2

THE DIMENSIONS OF INTERPERSONAL BEHAVIOR

Introduction

The scientific study of interpersonal behavior can not proceed without a systematic means of identifying and classifying interpersonal responses. This system should be comprehensive, making it possible to code virtually any response which emerges, whether it be adaptive or maladaptive. It should be functional--it should be possible to develop systematic relationships between categories, to draw relationships between behavior and the perception of behavior, to make predictions based on the data which has emerged, and to test hypotheses. This classification system needs to be replicable--its validity, consistency, and reliability can not be dependent upon the particular circumstances in which it is used, the raters who are using it at that particular time, or the population to which it is applied. The procedures for classifying responses should be operationalized--they should be capable of being communicated from one person to another. Ideally, this system would also be easily learned and easy to use. It would be applicable to covert as well as overt behavioral responses.

For the purposes of the research described here, the term "interpersonal behavior" will be used to describe any human response which has another human being as its object. This definition includes covert responses as well as overt ones, conceptions as well as actions. It

includes behavior which is focused on the self as well as on the other.

A unit of interpersonal behavior is more difficult to define. On its most basic level it consists of the smallest possible unit which is still amenable to being coded. On its broadest level, it consists of all the thoughts, feelings, and actions one individual has in response to another. In essence, then, behavioral units could consist of single words if it were possible to classify them according to the interpersonal system being used. Or, these units could consist of broader, more differentiated sequences such as entire paragraphs. In any case, a single unit would always be limited to the responses of one actor toward one recipient.

The Leary Model

Leary (1957) and his colleagues at the Kaiser Foundation Hospital observed, recorded, and studied interpersonal behavior in a wide variety of groups. They concluded each of their broad categories of interpersonal response could be characterized by referring to two orthogonal bipolar dimensions, namely affiliation and power. Affiliation was concerned with the degree of hostility or friendliness conveyed by the interpersonal response. Power dealt with dominance and submission. Hence, friendly dominant responses included nurturant, helpful, and supportive behavior; while dependent, help-seeking behaviors were classified as friendly submissive. Arrogant, rejecting, or punitive responses were considered hostile dominant; whereas anxious, distrustful, and guilty behavior was regarded as hostile submissive.

But Leary also realized he and his colleagues were not the first to conceptualize interpersonal behavior in terms of affiliation versus hostility and power versus weakness. Indeed, he stated such a theory

accounted for the four humors hypothesized by Hippocrates. Choleric temperament was associated with hostile power, melancholic with hostile submissiveness, phlegmatic with friendly submissiveness, and sanguine with friendly dominance. He also traced these themes through the writings of Freud and others.

Leary's model, however, was considerably more systematic than previous ones. He referred to his two bipolar dimensions as "Love" and "Dominance." Since these two dimensions were orthogonal, he conceptualized them as the coordinate axes of a plane, as shown in Figure 1. Cartesian coordinates, the first referring to the Love dimension and the second to Dominance, were used to graphically depict any interpersonal response. Thus, relatively neutral behaviors were depicted by points near the center of the coordinate system while intense communications were located further away. Extremely friendly behaviors which were neutral with respect to Dominance were located toward the high positive end of the Love axis. Extremely hostile submissive behaviors, however, were depicted by points located in the quadrant defined by the lower ends of both dimensions and as far from the coordinate axes as possible.

Additionally, Leary conceptualized sixteen interpersonal styles which in turn were grouped into eight pairs or "octants." They were labelled: (AP) Managerial-Autocratic, (BC) Competitive-Narcissistic, (DE) Aggressive-Sadistic, (FG) Rebellious-Distrustful, (HI) Self-effacing-Masochistic, (JK) Docile-Dependent, (LM) Cooperative-Overconventional, and (NO) Responsible-Hypernormal. The octants were arranged into a circular continuum in the same order as presented here. Thus, Responsible-Hypernormal behavior was closely related to Managerial-Autocratic behavior but not to Self-effacing-Masochism. Docile-Dependency was closely related

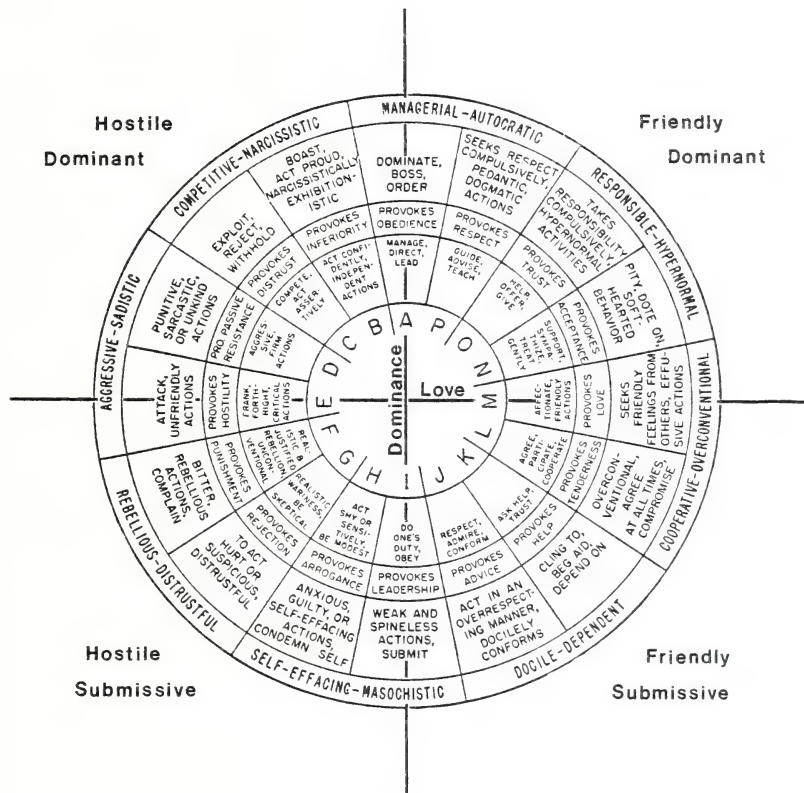


Figure 1. Schematic diagram of Leary's interpersonal system. Adapted from *Interpersonal Diagnosis of Personality* by T. Leary, New York: Ronald Press, 1957, p. 65. Copyright 1957 by Ronald Press, which is now part of John Wiley & Sons, Inc. Adapted and reprinted by permission.

to Cooperative-Overconventionality but not to Competitive-Narcissistic behavior.

In theory, this circular arrangement of interpersonal styles, also known as a "circumplex," was graphically superimposed on Leary's system of Cartesian coordinates. The center of this circle corresponded to the center of the coordinate system, and the interpersonal styles were arranged so that each roughly corresponded to the same kinds of behaviors as did the quadrants of the coordinate system, as shown in Figure 1. Thus, for example, Aggressive-Sadistic behavior was an expression of hostile dominance. Self-effacing-Masochistic behavior corresponded to hostile submissiveness. Docile-Dependency typified friendly submissiveness and Responsible-Hypernormal responses corresponded to friendly dominance. Behaviors within each style were also classified according to the intensity with which they expressed the basic interpersonal approaches. More intense behaviors were again depicted by points near the edge of the interpersonal circle, while less intense behaviors were near the center. Cartesian coordinates were used to locate behaviors in the circumplex as well.

Naturally, the specific actions of an individual could vary considerably across situations. The same individual might manifest Responsible-Hypernormal responses under one set of circumstances and Docile-Dependency under another. But according to Leary, if one classified a person's interpersonal behaviors over a long enough period of time, the majority of the behaviors would fit into one or two sectors. These categories were then assumed to represent the individual's interpersonal style.

Later researchers also reported considerable stability in interpersonal behavior, provided a sufficiently large sample of observations or

ratings was obtained for each person (Backteman & Magnusson, 1981; Horowitz, French, Gani, & Lapid, 1980; Moskowitz & Schwarz, 1982; Mueller, 1969; Olweus, 1979; Raush, 1965; Raush, Dittmann & Taylor, 1959a, 1959b). In a study of preschool children, for example, Moskowitz and Schwarz (1982) reported generalizability coefficients of .76 for dominance and .38 for dependency; the figures were based on behavioral observations collected over a period of eight weeks. Behavioral ratings aggregated across four teachers resulted in generalizability coefficients of .91 for dominance and .83 for dependency.

Backteman and Magnusson (1981) obtained ratings from the teachers of ten-year-old children and then repeated the procedure three years later. They also obtained very respectable results, particularly when one considers the length of time and the limitations of their methodology. Thus, although they used many different teachers, only one teacher rated a given child, and it was a different teacher on each occasion. The children were compared directly to their classroom peers rather than the general population. In addition, many of the children, especially the girls, were going through puberty--which would further enhance the unevenness of their development with respect to their peers. Prior to each rating occasion, however, the children did share the same class and teacher for three consecutive years. For the 413 boys, the uncorrected stability coefficients were .477 for aggressiveness, .461 for disharmony, and .441 for timidity. For the 445 girls, the corresponding coefficients were .405, .459, and .415.

Eron (1980, 1982) and Olweus (1979) also reported considerable longitudinal stability in aggression. In fact, after reviewing sixteen empirical studies based on observational measures of aggressiveness in

boys, Olweus concluded, "The degree of stability that exists in the area of aggression was found to be quite substantial; it was, in fact, not much lower than the stability typically found in the domain of intelligence testing" (1979, p. 852).

Meanwhile, the most popular measure of interpersonal style in the Leary system was the Interpersonal Check List (ICL), developed by LaForge and Suczek (1955). The check list could be applied either to self ratings or ratings of others. It consisted of descriptive adjectives and short phrases which could either be endorsed or not endorsed. Its construct validity was later supported by Lange (1970), who produced four video tapes. Each portrayed a constant central figure interacting with the same supporting actors in identical social situations. But the tapes varied in the interpersonal style of the central figure, resulting in portrayals of dominance, submission, hostility, and friendliness. They were shown to separate samples of fifty college students, who subsequently rated the central figure on the Interpersonal Check List. The resulting group profiles clearly discriminated between the four conditions. In each case, the figure was rated considerably higher on the corresponding octants than on the opposite ones. As anticipated, the scores on the orthogonal octants were lower than the corresponding ones but did not show any other consistent pattern.

Further evidence of the construct validity of the dimensions was provided by Truckenmiller and Schaie (1979). They had college sorority women rate themselves and five sorority sisters on the Interpersonal Check List. Descriptions of the behavior of figures on TAT cards were also collected from each woman and later categorized by trained raters. Independent factor analyses were done for the students' self-ratings,

the ratings of each student by five of her peers, and TAT categories. The analyses were then rotated to maximum similarity, and for each of the three sets of data, two bipolar and one unipolar factors were obtained. The bipolar factors were consistent across all sets of data; the third unipolar factor was consistent only for the Interpersonal Check List. The bipolar factors yielded a roughly circular arrangement of interpersonal styles on the check list, but not on the TAT, where there was a complete absence of interrater agreement.

ICL reliability estimates have been reported by a number of different investigators. Two-week test-retest reliability coefficients for the self-descriptions of obese women averaged .78 (range .73 to .83) for octants and .73 (range .64 to .83) for sixteenths (LaForge & Suczek, 1955). Five-month test-retest studies, cited by McLemore and Benjamin (1979), found self-rating reliability coefficients of .95 for Dominance and .62 for Love. For ratings of others, these corresponding figures were .74 and .72. Armstrong (1958) reported Kuder Richardson internal consistency coefficients ranging from .953 to .976. Studies utilizing the Leary system to classify observed behavioral responses have also achieved acceptable levels of interrater reliability (Billings, 1979; Heller, Myers, & Kline, 1963; Kronberg, 1975; Mueller, 1969; Raush, Dittmann, & Taylor, 1959a; Shannon & Guernsey, 1973).

More important from the standpoint of interpersonal theory, however, were the correlations between the interpersonal styles themselves. As noted earlier, the Leary system was based on Guttman's model of a circumplex. This meant scores on adjacent sectors of the circumplex should be highly correlated, but the correlations should gradually decrease as the distance between the intercorrelated styles increases. Orthogonal styles

(such as pure Love versus pure Dominance) should be uncorrelated. The coefficients should then become increasingly negative as one correlates styles on the opposite sides of the circle, with high negative correlations being obtained for precisely opposite styles, such as pure hate and pure love. According to data collected by LaForge & Suczek (1955), the styles on the Interpersonal Check List do approximate the order of a circumplex. Data from three samples (obese females, and male and female psychiatric patients) resulted in correlation coefficients for adjacent sixteenths ranging from .46 to .56. The coefficients then decreased in orderly progression until opposite styles were correlated, where the coefficients ranged from -.19 to .12. Correlations for adjacent octants ranged from .51 to .60, while correlations for opposite ones ranged from .11 to .12. It is apparent from these figures that large negative correlations were not obtained for opposite styles. Reportedly, this was explained by a common response set, namely the tendency to endorse adjectives. When this factor was controlled in a sample of psychiatric patients, all of the coefficients were lowered and negative correlations for opposite styles were obtained. In addition, the coefficients for orthogonal styles were very close to zero, thus verifying the circumplex ordering of the variables.

Foa (1961) reviewed studies by several different investigators, and concluded factor analyses and intercorrelations both gave preliminary support to a circular arrangement of interpersonal behavior. He reported the Leary styles were not equidistant around the circle, but they were in the proper order.

Lyons, Hirschberg, and Wilkinson (1980) also addressed the issue of circumplexity on the Interpersonal Check List, this time with self-

ratings collected from college students. The intercorrelation matrix for octants did fit a circumplex; in fact, none of the coefficients were out of sequence. KYST multidimensional scaling of the correlation matrix also resulted in a circumplex, although there were relatively large gaps between octants DE and FG, as well as between AP and NO.

But in addition to the circular ordering of the styles, Leary's model, including the Interpersonal Check List, was scaled along the dimension of intensity. Low level intensity, associated with fairly universal and socially desirable behaviors, was located near the center. Highly intense behaviors were plotted near the edge. Intensity on the ICL was defined empirically; the low level items were those which were endorsed most frequently. Because of this intensity dimension, Lyons et. al. (1980) reported the Leary model was actually a radex rather than just a circumplex. They chided other authors for ignoring the intensity dimension and sought to test it in their own investigations.

In their first study, the Interpersonal Check Lists of 63 college students were scored separately for each intensity level within each octant. The coefficients of reproducibility and scalability associated with each octant were subsequently examined. The reproducibility coefficients ranged from .87 to .96; only one octant (JK) was below .93. The scalability coefficients ranged from .62 to .81. For the Responsible-Hypernormal octant (NO), however, the third level of intensity was found to be more intense than the fourth (and theoretically higher) level. The current author suspects this was because the third level adjectives, at least by current standards, are probably less socially desirable than the fourth level ones. This speculation is also consistent with Lyons et. al.'s interpretation of the intensity scale as a social desirability

dimension.

In their second study, Lyons et. al. (1980) scored the Interpersonal Check Lists of 196 students for two levels of intensity for each octant. The intercorrelation matrix was then subjected to KYST multidimensional scaling. The lower-level intensity items appeared in their proper order and were plotted closer to the center of the resulting figure than any of the higher intensity ones. Although there were a couple of reversals and a gap in the arrangement of the higher intensity styles, Lyons et. al. reported the probability of obtaining an equal or better radex structure was less than .001.

At this stage, the Leary model looks promising as a means of classifying and investigating interpersonal behavior, and it has received more empirical examination than any other model. However, other systems do exist, and it seems appropriate to consider them as well. A particular concern is whether Leary's categories, especially the Dominance and Love dimensions, are reasonably universal, or whether they are applicable only to certain persons, circumstances, or methods of measurement. By examining the work of other investigators, we can also benefit from their conclusions about the organization of behavior. In actuality, as demonstrated by the remaining sections of this chapter, there has been a surprising amount of convergence in this area.

Foa's Model

In an apparent attempt to refine the Leary model, Foa (1961, 1964) proposed that "interpersonal behavior consists, in essence, in giving and taking away love and status to the self and to the other" (1964, p. 517). Although he arranged his styles in a two-dimensional circumplex, as shown

in Figure 2, Foa defined interpersonal behavior in terms of three aspects. The first was the content of the behavior, and consisted of acceptance or giving versus rejection or taking away. The second aspect was the object of the action, and consisted of focusing on either the self or the other. And the third aspect was the mode, which was either emotional, such as love; or social, consisting of power or status. As can be seen in Figure 2, the ordering and the underlying meaning of Foa's interpersonal styles was virtually identical to Leary's. In Foa's scheme, for example, Competitive-Narcissistic behavior consisted of social rejection of the other. Cooperative-Overconventional behavior consisted of emotional acceptance of the self.

Another interesting feature of Foa's system were his hypotheses regarding the development of interpersonal conceptualization. Foa (1964) speculated infants initially conceptualized behavior only in terms of acceptance versus rejection. Later they realized some actions were oriented toward themselves, while some were focused on others. Eventually, they learned to differentiate among the emotional and status aspects as well.

Foa (1964) also performed a cross-cultural validation of his interpersonal model. He hypothesized the interpersonal styles would form a circumplex as in Figure 2, with maximum positive correlations being obtained for adjacent styles and maximum negative correlations for opposite ones, regardless of the culture. However, cultural variations were predicted to affect the magnitude of the correlations between different aspects. This hypothesis was tested in Israel with married couples of European and Middle Eastern origins. For each of his eight interpersonal approaches, Foa developed three brief vignettes describing

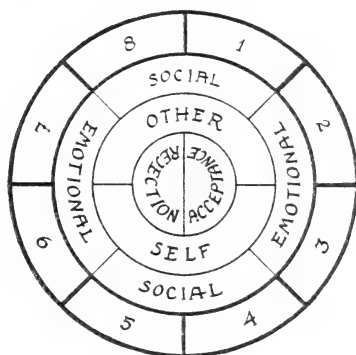


Figure 2. Schematic diagram of Foa's interpersonal system. From "Cross-Cultural Similarity and Difference in Interpersonal Behavior" by U. G. Foa, Journal of Abnormal and Social Psychology, 1964, 68, 517-522, p. 518. Copyright in 1964 by the American Psychological Association. Reprinted by permission.

the behavior of one spouse toward the other. Persons in his study indicated how often they or their spouse behaved similarly to the way described in the story. In both cultures, the intercorrelations among the interpersonal approaches described a circumplex with few deviations. But as predicted, the strength of the obtained coefficients varied between the two cultures. The Middle Easterners made stronger differentiations along the dimension of self versus other while the Europeans differentiated more between social and emotional behavior.

Circumplex Models of Parent and Child Behavior

Working independently of Leary and his formulations, other psychologists investigated parent-child relationships. Schaefer (1959) had observers rate the behavior of mothers toward their very young children. Eighteen behavior variables were intercorrelated and a "quasi-circumplex" was obtained. Factor analysis resulted in two orthogonal bipolar dimensions, referred to as Autonomy vs. Control and Love vs. Hostility.

Schaefer (1959) repeated his methodology, this time by rating interviews with mothers of older children. The intercorrelation matrix did not produce a clear circumplex; Schaefer suspected this was because the ratings were based on interviews rather than behavioral observations. Factor analysis did result in a rough circumplex ordering of the variables. Two orthogonal dimensions were again obtained and referred to as Autonomy vs. Control and Love vs. Hostility.

The data from several studies by other researchers was also reanalyzed by Schaefer (1959). In every case, he was able to organize their data on parental behavior into a two-dimensional "quasi-circumplex." The dimensions always corresponded roughly to Love vs. Hostility and

Autonomy vs. Control.

In another study, (Becker & Krug, 1964) five-year-old children were rated by their teachers and parents. The two largest orthogonal vectors derived through factor analysis were referred to as Introversion-Extraversion and Emotional Stability-Emotional Instability. The researchers then organized their data to form a circumplex of ten basic interpersonal styles, as shown in Figure 3. As can be seen from the figure, Becker and Krug's circumplex was remarkably similar to Leary's. In fact, if one rotated their primary dimensions roughly forty-five degrees, the resulting vectors would be Submissive-Assertive and Distrusting-Loving.

Becker and Krug (1964) intercorrelated the ratings on their ten interpersonal styles. The ratings obtained from teachers and mothers either described, or came very close to describing, a circumplex. Fathers' ratings were distorted along a good-bad dimension.

These researchers (Becker & Krug, 1964) also analyzed the data from six previous studies, including five not reviewed by Schaefer (1959). The first two centroids were extracted from ratings of children and graphically rotated to a common frame of reference. All of these studies resulted in circumplexes similar to theirs.

Additionally, parents were interviewed about their attitudes and behavior toward their five-year-old children (Becker & Krug, 1964). The two largest centroids were labeled Negative Emotionality-Warmth and Strictness-Permissiveness. These factors were not orthogonal, and, due to an inadequate sampling of variables, a good circumplex structure could not be obtained.

Schaefer (1965) later had adolescent children and Army personnel

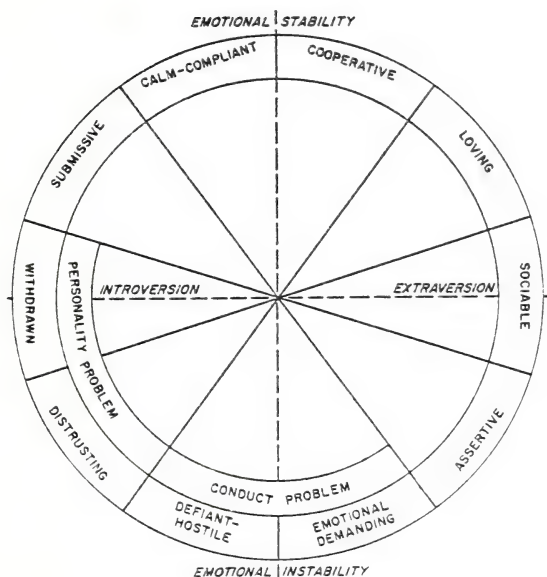


Figure 3. Schematic diagram of Becker and Krug's interpersonal circle. From "A Circumplex Model for Social Behavior in Children" by W. C. Becker and R. S. Krug, *Child Development*, 1964, 35, 371-396, p. 373. Copyright 1964 by the Society for Research in Child Development, Inc. Reprinted by permission.

rate their parents. Similar factor structures were found for each set of ratings. Each matrix resulted in three orthogonal bipolar factors accounting for an average of 66% of the total variance. The factors were referred to as Acceptance vs. Rejection, Psychological Autonomy vs. Psychological Control, and Firm Control vs. Lax Control.

Lorr's Model

Therapists' ratings of their clients on the Interpersonal Behavior Inventory were utilized by Lorr and McNair (1963). Their analysis resulted in a circumplex of nine interpersonal styles similar to Leary's. Factor analysis resulted in three factors forming a simple structure. The first factor, Control, was essentially a unipolar measure of dominance. The second factor, also unipolar, was associated with Passive-Dependency and Abasiveness and essentially measured dependency. The third bipolar factor was labeled Affiliation vs. Detachment. Using the data from three other studies done by Stern, Campbell, and LaForge and Suczek, Lorr and McNair (1963) reported their variables also described circumplexes which were defined by the same factors.

The Impact Message Inventory was subsequently designed as a counterpart to a later version of Lorr and McNair's Interpersonal Behavior Inventory (Perkins, Kiesler, Anchin, Chirico, Kyle & Federman, 1979). Instead of actually coding behavior, it classified the rater's own covert thoughts and feelings in response to interacting with the person being rated. Perkins et. al. reported a circumplex ordering of the 15 styles described in the scale. Principle components factor analysis with varimax rotation resulted in three factors accounting for 84.7% of the variance. The first was labeled Dominance, the second Affiliation, and the third Submission.

The Interpersonal Behavior Inventory, meanwhile, was refined and expanded into the Interpersonal Style Inventory (Lorr & Youniss, 1973). Based on 14 bipolar factors identified through a principal components analysis of an earlier version, a second-order factor analysis resulted in six factors. They were labeled Extroverted vs. Introverted, Socialized vs. Unsocialized (corresponding to hostile versus friendly), Independent vs. Dependent (or dominant versus submissive), Structure Seeking vs. Structure Avoiding, Stable vs. Anxious, and Slow vs. Fast.

Benjamin's Structural Analysis of Social Behavior Model

Benjamin's (1974, 1977, 1979a, 1979b, 1982; McLemore & Benjamin, 1979) model of interpersonal behavior, presented in Figure 4, was organized into three diamonds. They could just as easily be referred to as circumplexes, since they have similar properties. The first diamond referred to "parent-like" or dominant behaviors. The second referred to "child-like" or submissive behaviors. The third diamond, designated the "introject," consisted of parent-like behavior oriented toward the self. The horizontal axis of each diamond referred to Affiliation, ranging from "annihilating attack" to "tender sexuality," from "desperate protest" to "ecstatic response." The vertical dimension, designating Interdependence, ranged from "manage, control," to "endorse freedom;" from "yield, submit, give in," to "freely come and go."

Benjamin designed questionnaires and rating procedures to be used in conjunction with her model. Autocorrelational studies, in which correlations are calculated for only one subject at a time, have been done. In these studies adjacent behaviors were found to be highly correlated, but as the theoretical distance between the behaviors

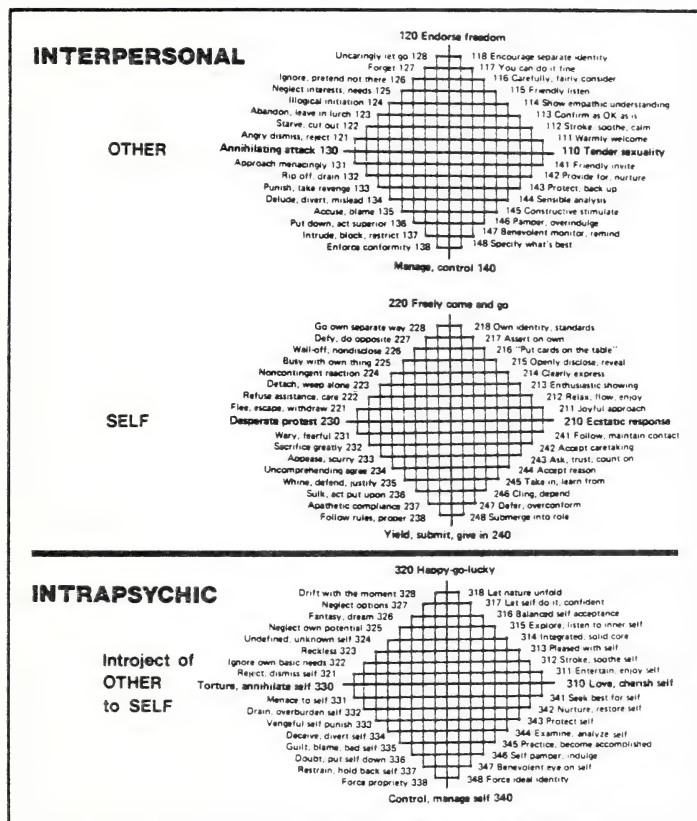


Figure 4. Schematic diagram of Benjamin's Structural Analysis of Social Behavior System. From "Structural Analysis of a Differentiation Failure" by L. S. Benjamin, *Psychiatry*, 1979, 42, 1-23, p. 6. Copyright 1979 by the William Alanson White Institute. Reprinted by permission.

increased, the correlations decreased. Opposite behaviors were negatively correlated. The size and the orderly patterning of the coefficients, however, depended upon the person being studied. This kind of internal consistency was greater for normals than for psychiatric patients (Benjamin, 1974). When the autocorrelation coefficients were correlated with scores for the inverted normal curve, the average correlation for child-like behaviors was .97 for normal adults, .92 for normal pediatric patients, .81 for adult psychiatric patients, and .68 for child psychiatry patients. In addition, these correlations for parent-like behavior in children tended to increase with age.

Ratings of adjacent and nonadjacent behaviors were also intercorrelated for groups of subjects, as was done in the other studies reviewed here. The resulting matrices were indicative of a rough circumplex structure, although there were a large number of deviations due to the large number of variables involved. Benjamin's (1974) factor analyses generally produced almost twenty factors accounting for about 70% of the variance after varimax rotation. However, she reported almost all of this variance could be accounted for by the first four factors. These factors were designated disaffiliation, affiliation, power, and emancipation. The factor loadings were transformed to two vectors, namely Disaffiliation-Affiliation and Power-Emancipation. But the behaviors tended to cluster around the vectors instead of spreading out like a circumplex. Benjamin (1974) attributed this to the use of varimax rotation, but these procedures were used in many of the studies reviewed here with better results. Benjamin concluded her factor analyses resulted in a "reasonable facsimile" (1974, p. 411) of her interpersonal grids. The current author disagreed, but did note Benjamin's interpersonal

behaviors were generally found in the predicted quadrants. This system has been slightly modified since these factor analyses, (Benjamin, 1977, 1979a, 1979b, 1982; McLemore & Benjamin 1979), but the results of the later factor analyses have apparently not been published yet.

Benjamin has tested the reliability of the revised model in Figure 4. She reported, "Test-retest reliabilities of dimensional ratings of the . . . items have ranged from .85 to .93, and interrater reliabilities for judgments of psychotherapy transaction segments in terms of the model fell exactly in the same range" (McLemore & Benjamin, 1979, p. 24).

Wiggins's Model

One persistent problem with empirical tests of the Leary system has been the failure of the circumplex to "close" in the friendly dominant quadrant (Lorr & McNair, 1963; Lyons et. al., 1980; Truckenmiller & Schaie, 1979; Wiggins, 1979). This was because Responsible-Hypernormal responses were often rated as friendly submissive instead of friendly dominant. Wiggins (1979) sought to correct this problem, as well as other semantic problems, by reorganizing the Leary system in terms of eight bipolar variables. New names were assigned to the styles, as listed below:

Leary (1957)	Wiggins (1979)
Managerial-Autocratic	Ambitious-Dominant
Competitive-Narcissistic	Arrogant-Calculating
Aggressive-Sadistic	Cold-Quarrelsome
Rebellious-Distrustful	Aloof-Introverted
Self-effacing-Masochistic	Lazy-Submissive
Docile-Dependent	Unassuming-Ingenuous
Cooperative-Overconventional	Warm-Agreeable
Responsible-Hypernormal	Gregarious-Extraverted

Wiggins then developed an empirically based interpersonal check list with adjectives corresponding to each of these interpersonal styles. Self-ratings on his check list were cross validated on four different samples. The data from each sample was factor analyzed and the first two principal components were found to account for 67.9% to 76.1% of the total variance. The resulting graphs of the interpersonal variables came much closer to describing a true circumplex than any other data reviewed here. Using the coefficient alpha as a measure of internal consistency, Wiggins reported the average coefficients for his samples varied from style to style but were never lower than .80.

Jackson and Helmes (1979) have since criticized Wiggins's check list, stating his results could have just as easily been obtained by Jackson's threshold model, in which subjects were assumed to respond only to the social desirability of the items and not the content. However, many theorists, including Benjamin (1974; McLemore & Benjamin, 1979), Carson (1969, 1975, 1979), and DeVoge (1980; DeVoge & Beck, 1978), believe social desirability responding in and of itself is a diagnostic indicator of interpersonal style. Hostile individuals typically endorse more undesirable traits than friendly ones. But, as noted by Lyons et. al., the Wiggins model has lost the radex properties of the Interpersonal Check List it was based on. Thus, while the intensity dimension of Leary's model incorporated many aspects of social desirability, Wiggins's model made no clear provision for them.

Meanwhile, Wiggins and Holzmuller (1978) noted the apparent relationship between Bem's and Heilbrun's androgyny scales and Leary's system of interpersonal styles. Specifically, the masculinity scales on these tests appear to measure power or status, while the femininity scales measure

affiliation. Their results are still preliminary, but if confirmed, most of the theories and empirical results relating to psychological androgyny could hence be subsumed under the theory of interpersonal style.

Additional Empirical Investigations

Schlenker (1975) manipulated the self-performance expectations of students who were told they were about to participate in a group task. Prior to the task, they completed self-descriptive rating scales which would presumably be shared with the remaining three members of the group. The self-presentation items were factor analyzed, resulting in two factors with eigen values of 7.093 and 2.671. The first rotated factor was labeled "competence," while the second, labeled "interpersonal relations," was closely related to affiliation. The males tended toward self-presentations of competence, while the females emphasized positive interpersonal relations.

In Golding and Knudson's (1975) project, high school students rated themselves and were rated by their peers. They also completed the Personality Research Form, Interpersonal Check List, Schedule of Interpersonal Response, Marlowe-Crowne Social Desirability Scale, and the Rational Stimulus-Response Inventory. The data were analyzed through an elaborate array of multivariate methods which controlled for method-specific factors, but resulted in factors for each self-report measure through principal components analysis. The investigators found cross-method convergence for three domains of behavior, namely Aggressive-Dominance, Affiliation and Sociability, and Autonomy. They reported their dimensions bore close relationships to Schutz's Control, Affection, and Inclusion factors; to the Dominance-Submission and Love-Hostility dimen-

sions obtained by Leary and his colleagues; and to Lorr and Suziedelis's factors of Control, Nurturance, and Detachment vs. Sociability.

Golding (1975b, 1977) also designed a series of 29 interpersonal vignettes involving the interpersonal behavior of two college-aged males. The behavior in these vignettes represented the various combinations of friendly dominant, friendly submissive, hostile dominant and hostile submissive stimulus and response behaviors. College students then rated the behavior of one figure in each vignette on eight bipolar semantic differentials. The ratings were subjected to a multidimensional scaling model, developed by Carroll and Chang, to calculate the Euclidean distances between the vignettes. Golding obtained solutions for six dimensions, but reported the degree of fit did not increase significantly after two. The correlation coefficient between these dimensions was only .12, indicating they were essentially orthogonal. One dimension correlated -.92 with Dominance-Submission ratings. The other correlated .98 with Sociability-Hostility. Since, unlike other studies, the stimulus materials were chosen to represent these dimensions, the results can not be considered surprising.

Argyle and Little (1972) had vocational students rate their own behavior in relation to 12 different stimulus figures, such as their boss, a liked co-worker, or a female friend. Slater's INGRID program for principal components analysis resulted in two components which accounted for 85% of the variance. The first was labeled "warm-cold." They reported the second was "closely related to dimensions of status and formality . . . we can designate it 'constrained vs. casual.'" (p. 19). Thus, their second dimension was not a pure measure of status, but was confounded with formality. The current author suspects this was because Argyle and

Little failed to sample the entire range of interpersonal relationships. While they included superordinate stimulus figures, such as the student's boss or a professional, they failed to include subordinates such as an employee or client. Their figures were also confounded with social roles, which varied from intimate (family, close friends) to formal (professional, boss).

A similar study with a wider range of relationships (Wish, 1976; Wish, Deutsch, & Kaplan, 1976) did result in separation of the status and formality dimensions. College students rated their own and "typical" relationships on bipolar scales. Individual differences multidimensional scaling analyses resulted in four bipolar dimensions accounting for 75% of the variance. The dimensions were Cooperative and Friendly versus Competitive and Hostile, Equal versus Unequal (Power), Intense versus Superficial, and Socioemotional and Informal versus Task-Oriented and Formal. High correlations between these dimensions and dimensions derived from subjective similarity measures provided additional confirmation, especially since these correlations were obtained with no rotation of the principal axes.

Conte and Plutchik (1981) ignored relationships entirely; they still developed a circumplex model of interpersonal traits. Beginning with a pool of over 17,954 trait terms, they excluded words referring to physical characteristics, temporary states, or ability; as well as words which were purely evaluative, ambiguous, or quaint in nature. The resulting list of 223 traits was submitted to six Ph.D. psychologists, who rated the meaning of each trait against the three reference words "quarrelsome," "cooperative," and "withdrawn." The mean ratings for each trait with respect to the reference words were then plotted, using

the geometric principle that the correlation between two variables corresponds to the cosine of an angle using polar coordinates. The most ambiguous words were eliminated, leaving 171 interpersonal personality traits that could be meaningfully plotted in a circumplex. The trait locations on this circumplex correlated .98 with the locations obtained in a similar pilot study using a different set of reference words.

As a further test of the model, 40 words with high interrater agreement were submitted to a new sample of six Ph.D. psychologists and four doctoral candidates. Each word was rated on 23 unipolar semantic differentials. For every possible pair of traits, the 23 semantic differential ratings were intercorrelated. Principle components analysis of the intercorrelation matrix resulted in one factor accounting for 50.5% of the variance and another one accounting for 40.5%. When the traits were plotted in terms of these factors, the result was a circumplex. The locations on this circumplex correlated .99 with those on the first one. Thus, in this study, two independent methods of deriving a circumplex were employed, and the results were virtually identical.

Critical Issues

By now, the primary conclusion to be drawn from these studies is obvious. Virtually all of them have obtained two or more dimensions. One is roughly comparable to the affiliative (hostile-friendly) dimension; the second corresponds to power (dominance-submission). These dimensions have emerged again and again, by different investigators, with different techniques, and with a variety of different subject populations. Their ubiquity is now widely accepted, not just by the authors cited here, but many others as well (e.g., Adams, 1964; Anchin, 1982a; Anchin & Kiesler,

1982; Duke & Nowicki, 1982; Kannarkat & Bayton, 1979; Kiesler, 1982b). Triandis (1978), for example, reviewed the anthropological literature in the attempt "to identify attributes of interacting individuals, social settings, social groupings, institutions, and social processes that apparently are universal" (p. 10). He concluded interpersonal behavior could universally be described in terms of four bipolar dimensions: Association-Dissociation, Superordination-Subordination, Intimacy-Formality, and Overt-Covert Behavior. DeVoge (1980) noted the Leary interpersonal system accounts for all these dimensions except the formality pole of Intimacy-Formality.

Others, however, are less quick to jump to such far-reaching conclusions, and there are some limitations in the research presented so far. First, as noted by Stiles (1980), the participants of these studies did not rate actual interpersonal behavior. What they rated instead were global personality characteristics, overall impressions of one's relationships, interpersonal traits, interpersonal roles, but not behavior. Stiles (1980) sought to investigate this issue with his own taxonomy of Verbal Response Modes (VRM) and Bales's Interaction Process Analysis (IPA). With the exception of the additional third dimension, the Bales IPA model (Bales, 1970) is very similar to the models reviewed here. Its three dimensions correspond roughly to dominant versus submissive, friendly versus unfriendly, and task-oriented versus socially oriented (Stiles, 1980). Although less related to the models presented here, the VRM can also be reduced to three dimensions--the anchors are attentive versus self-centered, acquiescent versus controlling, and presumptuous versus unassuming (Stiles, 1978, 1980).

Stiles (1980) obtained transcripts excerpted from dyadic conversa-

tions, and had students rate the members of each dyad on adjective rating scales ranging from "not at all" to "very much." The adjectives consisted of the anchors for the VRM and IPA dimensions cited above. In addition, expert raters coded each statement in the conversations with respect to both the VRM and IPA coding schemes. Multidimensional analyses of the students' ratings resulted in the usual dimensions of dominance and friendliness, as well as self-centeredness and task orientation. But the correlations between these dimensions and "ostensibly similar" dimensions, based on the act by act coding procedures, "ranged from moderate to negligible" (p. 359). Faced with this lack of substantial correspondence, Stiles concluded the universals reported by Triandis (1978) "are more prudently construed as universals of social perception than as universals of social behavior" (p. 372, emphasis original).

Stiles's results were not countertheoretical; they simply failed to support the theory to the extent one would have expected. Since very little research has been done on this particular topic, the reasons for these results are presently unknown. Perhaps Stiles is correct, or perhaps the results are a function of the methodological limitations of his own study. His ten excerpts, for example, could have failed to encompass a sufficiently large range of interpersonal styles, thus restricting the size of his correlation coefficients. There may not have been a precise match between the adjectives used in the rating scales--especially as they were interpreted by Stiles's undergraduates--and the phenomena that was coded by the raters. It is also significant that Stiles's students still did not rate actual behavior; they rated written transcripts instead.

Some comfort can be gained from a recent study by Wish, D'Andrade, & Goodnow (1980), in which participants did rate actual behavior. The

stimulus materials consisted of 17 dyadic conversations, one to two minutes in length, which were excerpted from interactions involving the Loud family in the National Educational Television series "American Family." This program portrayed the day-to-day interactions of an actual family--no actors or scripts were used. In addition, there were three conversations showing two unacquainted college students discussing an issue they disagreed on. Fifty college students rated the members of each dyad on twelve bipolar rating scales, while 64 rated them on the dimensions from Bales (1970) model and Osgood's evaluation, potency, and activity dimensions. The participants' means for each scale and stimulus figure were arranged into a matrix and subjected to factor analysis. Four rotated factors accounted for 90.4% of the variance. The first, labeled ascendancy, was equivalent to dominance-submission; the second, labeled evaluation, was synonymous with hostile-friendly; the third and fourth factors were labeled task orientation and arousal.

In addition, each statement in each conversation was coded according to Bales's Interaction Process Analysis and an elaborate speech act analysis system developed by the authors. The 37 speech act and IPA categories were also subjected to factor analysis. Five factors accounted for 56% of the variance. The authors reported significant and meaningful correlations between the interpersonal dimensions and both the speech factors and individual speech categories. The IPA categories did not fare quite as well--none were significantly correlated with ascendancy--but evaluation was significantly correlated with both positive reaction (.40) and negative reaction (-.36).

Another major problem with the research was the methods used to obtain the underlying dimensions. Factor analysis, whether fortunately

or unfortunately, is sensitive to the variables which are entered into the analysis. One can influence the resulting dimensions by selecting certain variables and excluding others. Furthermore, in each of the studies reviewed so far, it was the investigators who selected the adjective rating scales the subjects used. Clearly, if a researcher selects only those adjectives which are related to the affiliative and power dimensions, only these two dimensions will be extracted from the subsequent analysis. Consequently, it is not clear whose judgments have been resulting in the repeated discovery of the affiliative and power dimensions. Was it the participants who used the scales, or the investigators who selected them?

It is significant, however, that so many researchers, working independently of one another, have consistently settled on these two dimensions. In addition, we would probably be correct in assuming the judgmental processes of experimenters are not essentially different from those of their similarly human participants. Furthermore, even if people do not universally conceptualize others in terms of these dimensions, they do seem to be very adaptable to doing so. Otherwise, regardless of the variables entered into the analyses, the intercorrelation matrices would lack the consistent patterns necessary to obtain the two primary factors. Nevertheless, better answers can be obtained, as demonstrated by the following studies.

Horowitz (1979), for example, recorded 100 interpersonal problems presented by 28 patients in their initial psychotherapy interviews. Fifty college students were instructed to sort the problems into as many categories as they liked. A matrix was formed, indicating, for each pair of problems, how often they were placed in the same category. This matrix

was then subjected to multidimensional scaling procedures. Three major nonorthogonal dimensions were extracted: degree of psychological involvement, nature of the involvement, and intention to influence, change, or control. According to Horowitz, they roughly corresponded to the interdependence, hostile-friendly, and dominance-submission dimensions of Benjamin's and Leary's interpersonal systems.

Horowitz and Post (1980) later repeated the same procedures with self-descriptive adjectives derived from the same 28 patient interviews. Although the resulting three dimensions were given somewhat different labels, they reported the dimensions were substantially similar to those of Horowitz's (1979) previous study.

In accepting these studies, we must rely on the investigators' assertions that the participant-derived dimensions were in fact similar to the affiliative and power dimensions obtained in previous research with different participants and experimenters. Fortunately, other investigators have directly compared these two processes within the same study. Thus, Isenberg and Ennis (1981) reported three studies which utilized ratings on Bales's bipolar dimensions and multidimensional scaling procedures. Each participant rated the similarity of all possible pairs of persons on whatever criteria he or she chose. The first study involved students in self-analytic training groups, the second was based on the members of a research department rating each other, and in the third, students evaluated famous figures. In all three analyses, they reported the three-dimensional scaling model was the "preferred" one according to "traditional" statistical criteria. In addition, there was "substantial and statistically significant overlap" between the three dimensions of the multidimensional scaling models and the corresponding

dimensions derived from Bales's system.

The previously cited study by Wish (1976) and his colleagues (Wish, Deutsch, & Kaplan, 1976) is also relevant to this point. Participants in their study made three types of ratings for 25 different dyadic role relationships. The first type consisted of similarity ratings between all possible pairs of relationships. For the second, the participants selected some aspect of relationships which they believed at least two of the stimulus relationships shared in common. They then indicated the characteristic and listed the relationships which shared it. Finally, the third method consisted of rating all of the relationships on bipolar dimensions selected by the investigators. Separate matrices were constructed for each participant on each task--these matrices indicated the degree of similarity between all possible pairs of relationships. They were then subjected to Carroll and Chang's INDSCAL model of multidimensional scaling. The authors reported four dimensions which were consistent from method to method with no rotations. The coordinates for each relationship on each dimension were subsequently calculated for all three methods. These coordinates were then correlated across methods for each of the same unrotated dimensions. The correlations ranged from .93 to .98 for the first dimension, .93 to .95 for the second, .70 to .85 for the third, and .90 to .93 for the fourth. Based on subjective judgments and the multiple correlations between the dimensions and the bipolar adjective scales, the dimensions were named: (1) cooperative and friendly versus competitive and hostile, (2) equal versus unequal, (3) socioemotional and informal versus task-oriented and formal, and (4) intense versus superficial.

Several other cautions must also be noted before moving on. First,

even when the participants chose the basis for comparison, the researchers still selected the stimuli to be compared (Horowitz, 1979; Horowitz & Post, 1980; Isenberg & Ennis, 1981; Wish, 1976; Wish, Deutsch, & Kaplan, 1976). Conceivably, by selecting from only certain portions of the entire domain of interpersonal behavior, the investigators could still influence the differences which would be most salient to their participants. The wide range of relationships considered in the above studies would tend to argue against this, but it is still an area worthy of exploration. Preferably, the participants should be allowed to select the stimulus figures as well as the bases of comparison.

Second, the dimensions were always derived from data which was aggregated across many participants. Consequently, while they reflect the conceptualizations of groups of individuals, they do not necessarily reflect the conceptualizations of the individuals themselves. Using Osgood's evaluation, potency, and activity factors, for example, Kim and Rosenberg (1980) compared individual dimensions with aggregated ones. They found an evaluative dimension in the ratings of all of their students, but less than half utilized both the potency and activity factors as well. Furthermore, for many participants, the dimensions were correlated rather than being orthogonal. In their aggregated data, however, all three dimensions emerged and they were much closer to being truly orthogonal, especially when the ratings were made on experimenter-provided scales. Golding (1975b) and Wish (1976; Wish, Deutsch, & Kaplan, 1976) also reported individual differences in the use of their obtained dimensions. Despite this, the existence of individual differences does not undermine the general theory being explored here. They are in fact extremely relevant, especially when one considers the possibilities as to why these

differences exist. These issues will be examined further in later chapters.

The other note of caution relates to the current controversy as to whether the obtained dimensions of behavior are a function of the behaviors observed or the people doing the observing (Block, Weiss & Thorne, 1979; Lyons et. al., 1980; Passini & Norman, 1966; Shweder & D'Andrade, 1979; Stiles, 1980). Since there is currently no way to assess interpersonal behavior in the absence of reported perceptions obtained from people, there is no easy resolution to this issue. Interpersonal behavior does not have a separate existence from interpersonal perception. But we can examine the perceptions with respect to whether they are idiosyncratic or consensually valid. This examination, in fact, is a major underlying theme of the research presented here. Furthermore, for the purposes of this investigation, the "consensually valid" aspects of reported perceptions are assumed to derive from situational cues, while the idiosyncratic aspects are assumed to be individually specific. There is always the risk, of course, that future researchers will determine that even the consensually validated aspects of perception are also person specific, perhaps originating with genetically or culturally programmed ways of perceiving. Such issues are, however, beyond the scope and purpose of the current investigation.

Summary and Conclusions

In summary, the domain of interpersonal behavior appears to be the same for both the actor and the observer. All interpersonal behaviors are capable of being coded and classified with an acceptable degree of consistency and reliability. In general, however, this reliability

decreases as the number of categories for coding the behavior increases. Although meaningful differences exist on the individual level, the domain of interpersonal behavior, or at least the perception of it, can universally be characterized in terms of four bipolar dimensions. These dimensions are Association-Dissociation, Superordination-Subordination, Intimacy-Formality, and Overt-Covert. In the studies reviewed here, the first two dimensions have received the most thorough investigation, while the later two, especially Intimacy-Formality, have virtually been ignored. Affiliation, or Association-Dissociation, is particularly salient and has emerged as a factor in every study reviewed here. Superordination-Subordination also accounts for large portions of behavioral variance within our society. However, there appears to be variability in the conceptualization of this dimension. In some studies, it has been found to operate as a power dimension consisting of dominance versus submission, while in others the second dimension could be better characterized in terms of interdependence versus autonomy. Still others have regarded interdependence as a third factor separate from the other two.

In general, interdependence versus autonomy has been salient in studies of therapeutic or familial relationships, while dominance versus submission has characterized investigations of peer relationships. These differences are not surprising, since, by definition, the former relationships are ones in which the parent or therapist has superior status and influence. The vector associated with maximum variance, therefore, and the one where many concerns would be focused, is the one characterizing the degree of psychological involvement or interdependence. In peer relationships, however, there is less concern about involvement and more freedom for either partner to assume dominance over the other. But these

conclusions are still speculative, since the interdependence dimension and its relationship to the power and affiliative dimensions is still poorly understood. It deserves further exploration.

The Leary (1957) interpersonal system has been a favorite among researchers and theorists alike. Its principle disadvantage has been the persistent gap in the friendly dominant quadrant, although Wiggins's (1979) reconceptualization of this theory appears to have corrected this problem. The Leary system allows for the coding of the intensity of behavior as well as its power and affiliation. It can be used to differentiate up to sixteen categories (Leary, 1957; Wiggins, 1979), although many researchers like working with eight (Foa, 1961, 1964; Leary, 1957; Wiggins, 1979), and some (Carson, 1969, 1975, 1979; DeVoge, 1980; DeVoge & Beck, 1978; Golding, 1975b, 1977; Raush, 1965; Raush, Dittmann, & Taylor, 1959a, 1959b) prefer using only four. It is better at classifying peer relationships than parent-child ones.

The Benjamin model (1974, 1977, 1979a, 1979b, 1982; McLemore & Benjamin, 1979) is a modification of the Leary system and shows considerable promise. In theory, it is much more precise than the Leary system, but so far, this precision has not been obtained at the empirical level. The molar application of this system, however, utilizing quadrants instead of specific behaviors, appears to be both valid and reliable. In the Benjamin system, the interdependence dimension is separated from the power dimension with much more differentiation along interdependence (18 levels) than along power (2 levels). For this reason, it is probably more functional than the Leary system in the coding of parent-child relationships, but less functional with peer relationships.

As will be explained later, the current project was primarily

concerned with testing Carson's (1969, 1975, 1979, 1982) theory of interpersonal perception and behavior. In Carson's system, individuals were categorized into quadrant styles on the basis of the Leary system. The research reviewed here indicated such a system, although simplified, was a valid, comprehensive, and reliable means of characterizing behavior in moderately intimate peer relationships. Since that was the type of relationship being explored here, Carson's system was retained and employed in the current study. DeVoge and Beck (1978), meanwhile, have provided the following prototypical descriptions of each of these four interpersonal styles:

Descriptively, friendly dominance includes those transactions in which one person offers another guidance, support, help, leadership, or sympathy. These behaviors tend to convey (to the receiver) the sender's sense of self-confidence, strength and/or competence along with his basically warm feeling toward the receiver. At the extremes of this mode are such operations as benevolent dictatorship, paternalism and self-sacrificing overprotectiveness.

Friendly submissive behaviors likewise tend to communicate a warm, friendly feeling, but in the context of relative weakness rather than strength. This category is hallmarked by affectionate cooperation in the form of agreeability, dependency, compromise, or admiration directed toward others. In this mode, the sender signals his desire to receive help, affection, or leadership from others. At the extremes would be expressions of poignant helplessness, rigid overconventionality, or inappropriate effusiveness.

In the hostile submissive range of behaviors, the weakness theme continues, but the emphasis focuses on self-doubt, self-criticism, cynicism, or a variety of hateful actions directed primarily at the self. These behaviors tend to convey the sender's lack of faith in himself and his implied wariness of others. Extreme forms include groveling helplessness and excessive bitterness.

The final quadrant, hostile dominance, combines feelings of hostility with a sense of strength or pride. Included in the category are such behaviors as sarcasm, boastfulness, exaggerated independence, and narcissism. In this mode, the sender transmits his feelings of his own superiority and his contempt for others. Extreme types of this category include sadistic attack and narcissistic exhibitionism. (pp. 215-216)

CHAPTER 3

THE PATTERNING OF INTERPERSONAL RESPONSES

Introduction and Theory

Having discussed the determinants and the dimensions of interpersonal behavior, we are now free to consider the patterning of interpersonal responses. This chapter will end with the explication of two of the hypotheses which were tested here.

Sullivan defined personality as "the relatively enduring pattern of recurrent interpersonal situations which characterize a human life" (1953, pp. 110-111). The full implications of this definition will not be addressed here, although some of them will be discussed further in later chapters of this paper. This definition implies, however, that recurrent patterns of interpersonal behavior occur, that they can be characterized, and that they can endure. It further implies that to a large extent, these patterns are a function of the person who exhibits them. For the moment, however, our attention will be focused on the delineation of some of the simplest and most frequent types of interpersonal patternings--their variability and maintenance will be addressed later.

Sullivan recognized the interactional aspects of human behavior in his "theorem of reciprocal emotion" which stated:

Integration in an interpersonal situation is a reciprocal process in which (1) complementary needs are resolved, or aggravated; (2) reciprocal patterns of activity are developed, or disintegrated; and (3) foresight of satisfaction, or rebuff, of similar needs is facilitated. (1953, p. 198)

Sullivan believed individuals acquired their basic interpersonal attitudes early in childhood through their interactions with their caretakers.

Children essentially learned to feel and behave in ways which were complementary to the manner in which they were treated. He elaborated this point by stating:

So far as the positive aspect of this theorem manifests itself, complementary needs are resolved in the interpersonal relations one lives through; reciprocal patterns of activity are developed, refined, made more perfect; and there is foresight of how satisfaction can be gained more quickly, or continued longer, by improved performance. Now all of that gives rise to experience which is naturally congruous with the personification of good-me, and is manifested, as we can sometimes observe from the vocal and other expressions of young children, as their happiness and pride . . . (1953, p. 199)

However:

A child may discover that manifesting the need for tenderness toward potent figures around him leads frequently to his being disadvantaged, being made anxious, being made fun of, and so on, so that, according to the locution used, he is hurt, or in some cases he may be literally hurt. Under those circumstances, the developmental course changes to the point that the perceived need for tenderness brings a foresight of anxiety or pain. The child learns, you see, that it is highly disadvantageous to show any need for tender cooperation from the authoritative figures around him, in which case he shows something else; and that something else is the basic malevolent attitude, the attitude that one really lives among enemies--that is about what it amounts to. And on that basis, there come about the remarkable developments which are seen later in life, when the juvenile makes it practically impossible for anyone to feel tenderly toward him or to treat him kindly; he beats them to it, so to speak, by the display of his attitude. (1953, p. 214)

The childhood learning of interpersonal behavior is a prominent feature of many other personality theories and will not be reviewed further here.

The principle of reciprocal behavior, however, is a salient feature of all interpersonal theories. In essence, these theories predict similarity along the affiliative axis and complementarity along the power axis (Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Carson, 1969, 1975, 1979, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Kiesler, 1979;

Leary, 1957; McLemore & Benjamin, 1979). In general, friendliness should elicit subsequent friendliness, while hostility would provoke hostility. Dominance would induce submission, while submission would evoke dominance. This would imply the existence of two basic types of stable dyadic relationships--hostile dominance with hostile submission and friendly dominance with friendly submission.

Occasionally, though, nonreciprocal interactants do encounter one another. Friendly individuals meet hostile ones; the two individuals may be homogeneous with respect to power. Although a stable relationship is less likely to develop, and the decision to leave and seek other alternatives would be a distinct possibility, nonreciprocity would not necessarily doom the interaction entirely. (Carson, 1969, 1975, 1979, 1982; Kelley & Thibaut, 1978). Since relationships occur along two dimensions (affiliation and power), nonreciprocity on one of them may still allow the persons to organize interactions around the other. In addition, anti-complementarity in interpersonal style may actually be advantageous in certain situations, such as competition (Duke & Nowicki, 1982).

Other possibilities exist, however, and some probable insight may be gained from Sullivan (1953). As the astute reader may have noticed, Sullivan believed when a child adopted a "malevolent attitude" he later in life "makes it practically impossible for anyone . . . to treat him kindly; he beats them to it . . . by the display of his attitude" (1953, p. 214). The implications of this statement are clear. Apparently hostility is both stronger--and quicker--than love. The friendly person encountering the hostile one doesn't have much choice; he must either flee or fight.

Sullivan (1953) was not clear about the power dimension, but Carson

(1979) believed there was more room for negotiation. The encountering of two dominant persons was likely to result in one challenging the other. If submission by the weaker didn't follow, a competitive relationship would ensue until one member submitted or left the field. When two submissive individuals met face to face, Carson (1979) hypothesized the creation of a "leadership vacuum," a very uncomfortable set of circumstances. If neither partner fled, this vacuum would eventually be occupied by the more dominant one. Carson believed this possibility was further enhanced by the fact that dominance, in our culture at least, is a socially desirable role.

But these predictions are meant to be interpreted as probabilities, not invariances (Anchin, 1982b). In the realm of human behavior, almost anything is possible, including longer and more sophisticated behavioral patterns than those described here. For example, one could use a friendly strategy in order to seduce the other into a relationship in which they would later be exploited (Berne, 1964; Carson, 1969; Christie & Geis, 1970; DeVoge, 1980; DeVoge & Beck, 1978).

This later pattern, exploitative seduction, suggests another issue, one which has not been adequately explained by interpersonal theorists. As noted in Chapter 1, perception was assumed to be idiosyncratic, even though it may possess consensually validated aspects. Idiosyncratic perception presumably leads to idiosyncratic behavior, although frequently, at least on the more global levels, characteristic patterns could be identified. But what about the process between specific perceptions and behaviors? Is it also individually specific?

In the absence of more definitive theoretical guideposts, it was assumed the interrelationship between perception and behavior was generally

a consistent one. This would mean persons perceiving friendliness would respond with friendliness, while those perceiving hostility would reciprocate hostility. Similarly, perceptions of dominance in others would usually result in behavioral submission, and vice versa. However, to the extent the patterning of behavior becomes more complicated or fails to follow the patterns designated here, we must also be suspicious of the links between specific perceptions and their corresponding behaviors. Returning to our earlier example of exploitative seduction, we can suspect the exploitative efforts are preceded by perceptions of seducibility, of one who is not suspicious and therefore friendly. In this case, the perceptions of friendliness would actually climax in hostility.

Presumably, such patterns are not the norm, however, and it seems more productive to investigate the norms before attending to the exceptions. Although little research has been done, it does offer general support for these normative relationships:

Studies of Ongoing Relationships

Thus, when mothers rated their relationships with their children, similarity of styles on the affiliative axis was supported (Benjamin, 1974). Mothers who gave friendly self-reports described their children as friendly, while mothers who reported hostile parental behavior also delineated hostility in their children.

Becker & Krug (1964) interviewed mothers and fathers about their child-rearing behaviors and attitudes. Their five-year-old children were rated by both parents and two kindergarten teachers. The results were too complex to be summarized in detail here. But in general, similarity along the affiliative axis was strongly supported. Results with the

status axis were less consistent, but indicated a definite tendency for hostile dominance to be challenged. Parental use of physical punishment was positively correlated with distrustful and defiantly hostile behavior in their children.

Gellert's (1962) observations of preschool children indicated they modified their dominant behavior in accordance with their peers. They engaged in more dominant actions with submissive playmates and less dominance with assertive ones.

Raush and his colleagues (Raush, 1965; Raush, Dittmann, & Taylor, 1959a) studied social interactions among hyperaggressive and normal school-aged children. Although their methods of observation were "questionable" (Golding, 1975a, p. 283), they reported "the proportion of friendly or hostile behavior which children receive from their peers reflects rather closely the behavior they 'send' to them" (Raush, 1965). Submissiveness on the part of one child tended to be followed by dominance in another. Dominance was usually followed by submissiveness, but, as predicted by interpersonal theory, this relationship was not nearly as strong. The evidence also indicated changes in behavior resulted in corresponding reciprocal alterations in the behavior of others.

In another study (Robinson & Price, 1980), observers recorded the social interactions of well adjusted and poorly adjusted married couples. Following a period of baseline recordings, the couples self-monitored the frequency of pleasurable responses while simultaneously being observed. Similarity along the affiliative axis was strongly supported in both well adjusted and poorly adjusted couples. Correlations based on observers' ratings of the frequency of pleasurable responses each spouse emitted and received were .90 for well adjusted couples and .85 for poorly

adjusted ones. The corresponding coefficients for self-ratings were .87 and .66.

Other studies failed to find reciprocity on the affiliative dimension for at least some of their participants. In two of these studies, the relatives discussed issues of disagreement in the experimenters' laboratories. The video tapes of each interaction were subsequently coded by trained observers. For Alexander (1973), the interactions occurred between both parents and their teenager. When all the families were included in his analyses, supportive behavior elicited further support while defensive behavior (defined as judgmental dogmatism, indifference, superiority, etc.) provoked defensiveness. But when the families were divided according to whether or not the teenager was a juvenile delinquent, differences emerged. Supportive reciprocity was found only in normal families and between the parents in delinquent ones. Defensive reciprocity was found only in the parent-child interactions of delinquent families.

Similar differences were more recently reported by Margolin & Wampold (1981). Comparing nondistressed and distressed married couples, reciprocity in positive behaviors characterized all of their participants. Both types of couples also displayed comparable base rates for negative behaviors, and in distressed couples, the negative behaviors elicited negative reactions. But in nondistressed couples, the negative responses, while equally frequent, appeared to be noncontingent. They stimulated positive reactions as well as negative ones.

In contrast to these studies, the families in J. Snyder's (1977) sample were not required to resolve disagreements. Instead, they were escorted to a laboratory living room and allowed to behave as they pleased.

The problem families in his research each reported marital difficulties and behavior problems in their school-aged son, although none had been in treatment. Each family was assessed for its frequencies of pleasing, displeasing, and neutral behaviors; and in this case, unlike the other studies, the pleasing and displeasing behaviors were defined by the participants themselves. Compared to problem families, nonproblem families were more likely to respond positively to pleasing behaviors and negatively to displeasing ones. Although displeasing behaviors were more frequent in the problem families, they were described as showing no behavioral contingencies. Their frequencies of pleasing, displeasing, and neutral behaviors were about the same, regardless of the responses which had immediately preceded them.

Reciprocal changes in behavior, obtained by manipulating the behavior of the other, were observed and reported by Lochman & Allen (1979). Eighty dating couples role played three marital conflict situations. After the first situation, one member was privately instructed to show either increased approval or disapproval of the other. Increased disapproval elicited more negative responses from the partner, resulting in a "vigorous hostility cycle" (p. 635). Both partners perceived the other as more disapproving and were less satisfied with their interaction. When females became more approving, they received more approval from their dates, who were also more satisfied. Males experienced more difficulty increasing positive responses than females, and also felt a corresponding drop in power and activity. Their dates, on the other hand, felt more powerful and satisfied, but, given the conflict situation, they failed to increase their overt approval.

Depression Research

The interpersonal aspects of depression consist of negative affect, self-doubt, pessimistic attitudes, and lack of energy. Depression, therefore, can be reliably classified as hostile submissive in interpersonal style (e.g., DeVoge & Beck, 1978; Leary, 1957; Lemaire & Clopton, 1981; McLemore & Benjamin, 1979; Youngren & Lewinsohn, 1980). In line with interpersonal theory, depressed people--in contrast to normals or persons with other psychological problems--have reported higher frequencies of conflict and negative reactions from the people they encounter (Youngren & Lewinsohn, 1980). They also elicited more negative appraisals from peers in group interactions (Youngren & Lewinsohn, 1980) and were unlikely to be chosen as group leaders or as high contributors to group decisions (Petzel, Johnson, Johnson, & Kowalski, 1981).

Coyne (1976) had depressed psychotherapy clients, nondepressed therapy clients, and normal adults converse with college students on the telephone for twenty minutes. Even after this short, non-face-to-face contact, significant differences were obtained. Depressed clients were regarded as sadder, more uncomfortable, weaker, more passive, and more negative than either nondepressed clients or normals; essentially the students regarded the depressed clients as hostile submissive. Compared to other students, however, these students themselves felt more hostile, depressed, and anxious after these brief interactions. They were less willing to engage in future interactions with the person they spoke with. In other words, hostile submissiveness had elicited hostile dominance in the form of hostility and rejection. Coyne speculated this was because depressed persons were inappropriately revealing intimate and negative details about their lives, such as family strife, deaths, hysterectomies

and marital infidelity.

This factor was controlled in a subsequent study by Hammen and Peters (1978). Students conducted five-minute interviews over an intercom system. Half of the interview targets were depressed; half were nondepressed. All targets, however, were role-played by other university students. Self-disclosures and interview content were controlled by giving the interviewers a list of questions to ask and the targets a script outline to use in formulating their answers. Despite the short interaction, "depressed" targets were perceived as being significantly more impaired than "nondepressed" ones. The interviewers of these targets were themselves more depressed afterwards than interviewers of "nondepressed" targets. "Depressed" targets of the opposite sex were more likely to be rejected than those of the same sex, especially by female interviewers. Again, hostile submissiveness had elicited hostile dominance.

This was confirmed again in a third study of the interpersonal consequences of depression (Howes & Hokanson, 1979), in which students conversed with a confederate while waiting for an experiment. The confederate played three roles; either a depressed person, a physically ill person, or a normal individual. The content of the conversations was controlled. Intimacy was greater in the depressed and physically ill conditions, but these conditions were approximately equal. The conversations lasted about seven minutes and were surreptitiously recorded. Following this, the participants completed questionnaires.

The results indicated the students were more supportive of the depressed and physically ill individuals--whom they perceived as impaired in life functioning--than of the normals. On all of the other conversation variables, however, they treated the physically ill people the same

way they treated normals. Yet in response to depressed people, the participants were more silent. They made more direct negative statements and fewer verbal responses, especially positive or neutral statements under the category of "conversation maintenance." There were no significant differences in elicited moods of hostility, anxiety, or depression. Nevertheless, subjects who were paired with a depressed person were more likely to request a different partner for future psychology experiments. Depressed people were also seen as less agreeable, nurturant, or affiliative. They were viewed as more inhibited, submissive, hostile, mistrustful, detached, and in need of nurturance.

Even though these later two studies achieved better control over the conversational content than Coyne (1976) did, they failed to use real depressives as their target individuals. To the extent that role-played depression differs from real depressive behavior, the results of these later studies may or may not be valid. Another study (Boswell & Murray, 1981), however, did control the conversational content and employed real depressives, although the participants were not given the opportunity to actually interact with the targets. It also extended the depression results by including another hostile submissive target group, namely schizophrenics. Boswell and Murray constructed 12 tapes of a constant interviewer discussing the same basic topics with a target individual. The target person varied from tape to tape and included four normal hospital staff, four depressed inpatients, and four inpatient schizophrenics. Half of the targets in each group were males and half were females. Introductory psychology students, also evenly divided between males and females, each listened to one tape and completed a variety of perceptual and mood scales. The male depressives and schizophrenics elicited signif-

ificantly more rejection than normal males. Significant differences were not obtained among the female targets, who were all less rejected than male schizophrenics, but more rejected than normal males. Rejection was additionally negatively correlated with ratings of "warm strength" and affection. As before, depressives and schizophrenics continued to arouse more dysphoria than normals. They did not differ appreciably from each other, except that while schizophrenics induced fatigue, depressives lowered surgency.

Aggression Research

The aggression research is quite extensive, consequently only a few recent studies will be reviewed here. To begin with, observation of aggressive sports, such as hockey and wrestling, has been found to elevate feelings of aggression and punitiveness--both in contrast to pre-event moods and to nonaggressive competition such as swimming (Arms, Russell, & Sandilands, 1979).

Furthermore, Eron's (1980, 1982) conclusion, based on his longitudinal study of aggression and violent television viewing in 427 children, was that "The single best predictor of how aggressive a young man would be when he was 19 years old was the violence of the television programs he preferred when he was 8 years old" (1980, p. 246). Aggression in 19-year-old males was also positively correlated with how much television they currently watched ($r=.28$), the violence of the programs they preferred ($r=.36$), and how realistic they considered the programs to be ($r=.34$). Large replication studies in Chicago (the first was in rural New York), Finland, Poland, and Australia also resulted in low but significantly positive correlations between violent television viewing and aggression

ratings collected from peers.

But the relationships did not end there. First, the results were stronger for boys than for girls; Eron (1980) believed this was because girls have traditionally been the victims of television violence rather than the perpetrators. Parental use of physical punishment was positively related to aggression, although nonphysical punishment was not. Additionally, "those who were rated as aggressive by their peers tended to rate themselves as aggressive, to rate others as aggressive, and to see the world about them as an aggressive place" (Eron, 1980, p. 246). Finally, Eron (1982) considered the possibility of a circular relationship between perception and behavior:

Although we have demonstrated that television violence is one cause of aggressive behavior, it is also probable that aggressive children prefer to watch more and more violent television. The process is very likely circular. As we have seen, aggressive children are unpopular, and because their relations with their peers tend to be unsatisfying, they spend more time watching television than their more popular peers. The violence that they see on television reassures them that their own behavior is appropriate while teaching them new coercive techniques.... (1982, p. 10)

One obvious problem with Eron's work, at least for the current purposes, is that the aggression which is apparently triggered by the perception of television violence is typically not targeted against the television. In this sense, his studies were not truly interpersonal and did not directly examine the link between perception of another and behavior toward that other. In addition, while being clear about hostility eliciting hostility, they are rather vague with regard to dominance and submission. In the absence of more definitive research, we can not be certain whether aggressive children are incited by the presence of easy victims or whether they are attempting to exercise counter hostile dominance. Despite this, Eron's (1980, 1982) work is relevant in suggesting

the more people perceive violence as a part of the cultural milieu, the more they respond with aggression. They are also in line with Berkowitz and Donnerstein's (1982) observation that under many circumstances the mere presence of a violent weapon can stimulate heightened aggression.

Aggression researchers also draw distinctions between instrumental or competitive aggression (as in sports), and hostile aggression or anger (Berkowitz & Donnerstein, 1982; Sebastian, Buttino, Burzynski & Moore, 1981). Instrumental aggression is presumably not interpersonal, since one is merely playing by the rules of the game and not seeking to devastate the opponent. But hostile aggression is generally retributive in nature; it is interpersonal; and seems to operate on a different reward structure. And for this type of aggression, knowledge of the other's victimization and pain has been found, at least in some instances, to be particularly rewarding (Berkowitz & Donnerstein, 1982; Sebastian et. al., 1981).

Sebastian et. al. (1981), for example, assigned their male introductory psychology students the task of designing a promotional campaign in five minutes. Their creativity was ostensibly assessed by a confederate, who rewarded them with either one or nine out of a possible ten electric shocks. The investigators inferred the participants who received nine shocks, in contrast to those who got away with just one, were now angry at the confederate. The participants were then informed a second, unrelated study was about to begin. In a typical Buss procedure, the confederate had to master a concept formation task; and for each of his failures, he was administered electric shock by the participant. Meanwhile, the participant determined both the intensity and duration of each shock administered. Half of the participants were informed the longer,

more intense shocks would interfere with learning and cause the confederate pain. For the other half, this aspect of the instructions was omitted. In addition, since the participants had no way of observing the confederate, a prominently displayed "pain meter" provided feedback about his purported suffering. This meter was biased toward high readings for half of the participants and toward low ones for the remainder.

The angered men were significantly more punitive than those who were not angered. Especially punitive were the angry men who were also told the shock was hurting their victims, and whose meters recorded high levels of pain. Hostile dominance thus elicited counter hostile dominance, and was reinforced by evidence of victimization, but caution is still needed. Sebastian et. al. reported the literature is not consistent in this area. In particular, another similar study found all participants, even angry ones, had inhibited their aggression under conditions of high pain feedback. Sebastian et. al. suggested the procedures of this other study may have made the participants overly anxious about the impression they were making on the experimenter, and that this anxiety could have inhibited their aggression.

Laboratory Games

Prisoner's dilemma games have also been used to examine social interaction along the affiliative dimension (e.g., Kelley & Stahelski, 1970; Kuhlman & Wimberly, 1976). The games were played in dyads in which each partner had two choices, namely cooperation or competition. If both chose cooperation, they gained a moderate payoff. If both competed, they experienced a minor loss. But if one chose cooperation and the other picked competition, the competitor earned a considerable advantage while

the cooperator suffered a major loss. Communication between the partners was not permitted until their choices had been made. Hence the dilemma: mutual benefit was enhanced by mutual cooperation. But cooperation was risky; it meant vulnerability to a stranger's exploitative tendencies. The games typically continued for a series of successive trials; allowing partners to develop expectations based on past performance. Preliminary evidence suggested the games exemplified many situations involving decisions between mutual benefit and personal gain (Kelley & Stahelski, 1970).

Prior to the games, the participants were "diagnosed" by privately asking them whether they intended to work for mutual benefit or to maximize their own score (Kelley & Stahelski, 1970; Kuhlman & Wimberly, 1976). The resulting interactions were then observed. For homogeneous couples, the similarity prediction was strongly supported across a number of different studies. Homogeneous pairs of cooperators made many more cooperative responses than homogeneous pairs of competitors. Most of the time, the cooperators accurately perceived their partners as cooperators; the competitors accurately perceived their partners and competitors.

Heterogeneous couples also supported the earlier predictions. Competitive persons were equally competitive with anyone and often mistook their heterogeneous partners to be fellow competitors. Cooperative persons, however, were considerably less cooperative with heterogeneous partners and regarded their partners, quite accurately, as competitors.

Other researchers instituted additional twists to make the games even more interpersonal; they also can be interpreted as evidence for self-fulfilling prophecies (Darley & Fazio, 1980). Jones and Panitch (1971) ran their participants in same-sexed pairs, one of whom was designated the "receiver." The receiver was given bogus information

implying she or he was either liked or disliked by the other participant. This was followed by the traditional prisoner's dilemma games and post-experimental questionnaires.

Not surprisingly, receivers who thought they were liked also liked their partners more. With the exception of males in the dislike condition, their frequency of cooperative acts were positively correlated with those of their partners. Beyond this, sex differences were obtained. Male receivers in the like condition were more cooperative than those in the dislike condition. Attitudes of liking and cooperative behavior were positively correlated for both types of male participants, and male targets felt more positively toward receivers in the like condition than those in the dislike condition. For females, none of these relationships were significant.

Hokanson, Sacco, Blumberg, and Landrum (1980) paired normal college students with other normals, depressed students, or students with other psychological problems. They also manipulated the power dimension by informing the second student of the first student's response prior to making his own. Since the game also included three possible choices, the second participant could use this information to exploit the other; to be cooperative in which both received equal payoffs; or to be ingratiating, in which the first participant actually benefited more than the second. The participants also had several opportunities, via experimenter-provided checklists, to communicate with one another.

When assigned the low power position, all three groups of participants engaged in similar behaviors. But the depressed persons, in contrast to normals, conveyed messages of self-devaluation and helplessness. They also blamed the other for their devalued position, which in many

cases stimulated ingratiating behavior from their normal partners. Persons with other psychological problems communicated--and received--fewer messages of ingratiation.

Compared to normals, depressed persons in the high power role became exploitative and noncooperative, even though they continued to convey messages of sadness, helplessness, and devaluation. Their behavior elicited noncooperative behavior from their partners, neither gained many points, and in fact, this was the one combination in which the low power person tended to lose points. In addition, their normal low power partners expressed feelings of extrapunitiveness and helplessness. Persons with other psychological problems were also more noncooperative than normals, but less so than depressives. They again communicated less ingratiation.

Thus, Hokanson et. al. (1980) found that exploitation and noncooperation tended to elicit noncooperation and feelings of helplessness. Maladjusted persons in a dominant role favored hostility, while normals were considerably more cooperative. In fact, in the face of hostile submission where they were told they were responsible for the other's devalued condition, normals frequently responded with ingratiation. Finally, depressed persons, even when they possessed the greater power in the relationship, continued to communicate messages of helplessness and devaluation. We will return to these results later.

Meanwhile, Snyder and Swann's (1978a) game involved a competitive reaction-time task in which each person had a noise weapon. This weapon could be used to one's advantage by distracting the opponent from the task. Only one of the two opponents could use the noise weapon on any given block of eight trials. The first person to have access to the noise

weapon was designated the "labelling perceiver." Prior to the experiment, half of the labelling perceivers were given bogus information indicating their opponent, the "target," was hostile, while half were informed he was not hostile. Half of the targets, meanwhile, were told that their use of the weapon was correlated with their own hostility, while the remainder were informed that use of the weapon was generally situationally determined by the aggressiveness of the opponent. After three blocks of trials, the targets were then pitted against "naive perceivers," who had received no previous information about the targets.

Labelling perceivers who expected hostile targets used the weapons more than those who expected nonhostile ones, even before their opponent had a chance to use the weapon. The hostilely labelled targets reciprocated with increased use of the weapon, which only reinforced the labelling perceivers' initial impression. When the targets were told their noise level use was indicative of their own hostility, hostilely labelled targets continued using more noise with the naive perceiver (even before the naive perceiver had responded,) than nonhostilely labelled ones. Targets who thought their noise use was just a function of the other's behavior showed no significant differences between the two labelling conditions.

Smelser (1961) also employed college students and a laboratory game--this time to examine relationships along the power dimension. Male students were selected according to their scores in the Dominance scale of the California Personality Inventory. The experimental apparatus consisted of a circular model train track with two trains and two bypass sidings. Each student was responsible for the operation of one of the trains, which ran in opposite directions. Each also had a control panel

to operate the speed and direction of the trains, the switches on and off the main track, the power to different sections of the track, and a master control switch. The task required the cooperation of both students and consisted of getting both trains to complete as many revolutions around the track as possible. There were six trials lasting three minutes each.

The students were observed in pairs, but the composition of the pairs varied from session to session. Some pairs consisted of one dominant and one submissive student, some had two dominant students, and some had two submissive ones. Half of the time, the subject's dominant or submissive role vis-à-vis his partner was assigned by the experimenter, the other half it was not. Sometimes, these roles fitted the accustomed interpersonal styles of the students; that is, dominant students were assigned dominant roles and submissive students were assigned submissive ones. On other occasions, they didn't. At the end of the session, each person rated himself and his partner on the Interpersonal Check List, which was scored for Dominance. Each student participated in only one experimental session.

In general, dominant students regarded themselves as more dominant than their partners, while submissive students viewed themselves as less dominant. The ratings appeared to be additionally influenced by the experimental role assignments--bearing a dominant role enhanced the perception of dominance, while carrying a submissive one decreased it.

The scores of all student pairs improved between their first and last trial, indicating they were better able to coordinate their activities with practice. However, the very best scores were obtained when a dominant student was assigned a dominant role and was paired with a submissive student who was assigned a submissive role. The absolute worst

scores were obtained when a dominant student was given the submissive role and then given a submissive partner trying to enact a dominant role. When leadership roles were not assigned, the worst performance was obtained by pairing two submissive partners. Pairs with two dominant partners performed as well as pairs with only one dominant partner. When the students were homogeneous with regard to power and were additionally assigned roles by the experimenter, dominant pairs outperformed submissive ones.

Smelser's results indicate, therefore, that complementarity with respect to power enhances cooperative performance, particularly when persons are assigned their accustomed interpersonal approaches. Individuals have more difficulty enacting roles which are opposite to their typical behavior, and this is especially true for submissive individuals.

Laboratory Interactions with Strangers

Petzel, Johnson, Johnson, and Kowalski (1981) identified "depressed" and "nondepressed" students on the basis of the Depression scale of the MMPI. They then constructed problem-solving groups of six to eight members, which were either homogeneous or heterogeneous with respect to depression. The task performance of the three types of groups did not differ, indicating that while depression interfered with interpersonal behavior, it did not result in task-related deficits. As predicted, the participants in heterogeneous groups rated the group more efficient, competent, cooperative, and enjoyable than those of homogeneously depressed or nondepressed groups. The experimenters believed this was because in heterogeneous groups, the leadership and follower roles were more clearly stratified.

Kronberg (1975) investigated the eliciting aspects of interpersonal behavior, and predicted hostile dominance would elicit hostile submissiveness in return. Friendly submission, on the other hand, would elicit friendly dominance. College students listened to a series of statements on audio tapes and were instructed to respond as if they were conversing with the person who made them. Similarity with respect to the affiliative dimension was obtained. Complementarity with respect to the power dimension was not found.

Using the Leary system, Shannon and Guernsey (1973) recorded and coded the group interactions of college females. They expected to obtain similarity with respect to the affiliative dimension and complementarity with respect to power. Their predictions with regard to affiliation were confirmed. Complementarity between friendly dominance and friendly submission was also obtained. Hostile dominance, however, was challenged with more of the same. Hostile submission in this sample, as in Kronberg's (1975), was rare. Its provocative nature could not be tested.

Snyder, Tanke, and Berscheid (1977) had single men talk with single women over an intercom system. Half of the men were led to believe they were talking with an attractive woman, while half believed the opposite. In reality, the women were college students who had been randomly assigned to the two conditions. The resulting interactions were evaluated by naive judges. When men believed their partners were attractive, they had more positive expectations for the social behavior of their partners, and were more sociable themselves, than when they thought their partners were unattractive. Despite the random assignment, women in the attractive condition were also more sociable than those in the unattractive condition.

Bond (1972), on the other hand, found his hypotheses reversed as a

result of the altruistic tendencies of his participants. His female undergraduates were tested in groups of three. One, designated the "constant stimulus person," interacted with the other two in random order. Prior to this, the other two were given bogus information indicating the constant stimulus person was either interpersonally warm ("warm set") or cold ("cold set"). The resulting interactions were video taped and rated by female observers, but there was no indication as to whether or not they were blind to the interview condition.

The initial manipulations were successful in that warm set students expected warmer partners than cold set ones. The constant stimulus persons also talked proportionately more with the warm set partners. Despite this, the constant stimulus persons reported their cold set partners were in fact the warmer ones. This was confirmed by the independent observers, who additionally stated the constant stimulus persons also behaved more warmly toward the cold set partners. Postexperimental interviews resolved the contradictions. Apparently, many of the cold set students had attempted to be especially warm in order to draw their partners out. One can also suspect that in their efforts to do so, they additionally talked proportionately more. Thus, contrary to the results of the study, reciprocity in behavior on the affiliative dimension was supported. The relationship between perception (or expectations) and behavior, however, was not necessarily a consistent one.

Therapeutic Interactions

Psychotherapists too are susceptible to the evocative aspects of client behavior, as shown in a well controlled study by Heller, Myers, and Kline (1963). Actors were trained to play friendly dominant, friendly

dependent, hostile dominant, and hostile dependent client roles. Graduate student therapists interviewed all four actors under the impression they were treating real clients. Interviewers were observed and rated on a modified version of the Interpersonal Check List. Similarity with respect to affiliation and complementarity with respect to power were obtained.

Mueller's (1969) careful and ambitious study of natural therapeutic interactions also provided at least some support for the normative relationships described here. He began with 39 completely tape-recorded cases of college students in therapy with staff and graduate student therapists. Client and therapist responses in the first session and half of four other selected sessions were classified according to Leary's 16 interpersonal styles. In addition, each tape was subsequently rated for the client's self-reported interactions with parents and significant others. The coding was done on a thought-by-thought basis, with the last thought in one person's utterance being treated as the stimulus for the other.

Mueller's results were too complicated to reviewed in detail here. In general, the interaction patterns the clients reported between themselves and their parents or significant others provided mixed support for the theory presented here. It is not clear whether this mixture could be attributed to biased recall of emotionally laden material, or whether the inconsistencies were rather destructive to the clients' overall adjustment and contributed to their later need for psychotherapy. In any case, Mueller's results suggest real-world interactions may be considerably more complicated than what has been observed in the laboratory.

With respect to current client-therapist interactions, Mueller's

findings were more consistent with the predictions of interpersonal theory. Also significant was his report that over the course of therapy, the clients' responses to their therapists became increasingly similar to the behavior they reported using with their parents and significant others. This, of course, can be interpreted as interpersonal evidence of transference phenomena. But even more intriguing was Mueller's assertion that the therapists' behavior toward their clients also changed--becoming progressively similar to the reactions the clients purportedly elicited from their parents and significant others. Once again, the interpersonal manifestations of countertransference had also been observed.

Critical Issues

In summary, the evidence reviewed here generally supports our predictions. With respect to the affiliative dimension, similarity in interpersonal style appears to be the norm. If the two individuals are heterogeneous with regard to affiliation, the interaction is more likely to be hostile than it is to be friendly. There is a somewhat weaker norm for complementarity in power, at least in stable relationships. Submissiveness typically elicits dominance in others. But dominance does not necessarily elicit submissiveness; it may be challenged by increased dominance, especially if it is also hostile.

In general, perceptions regarding the affiliative dimension match subsequent behavior. If the other is perceived as hostile, hostility will be returned. If the perception consists of friendliness, the subsequent behavior will be friendly as well. Similar principles apply with respect to power. Persons who are perceived as submissive tend to be led; persons who are regarded as domineering are either obeyed or challenged.

But while the previous research offers promising support for Carson's theory, it can hardly be regarded as conclusive. Some aspects have apparently not been investigated, the results from some studies are decidedly mixed, and almost all suffer from one or more theoretical or methodological limitations. In general, these limitations are observed here because the studies were originally designed for other purposes. They are not the fault of the original investigators and merely underscore the need for more definitive research in this area.

To begin with, while many studies focused on the affiliative dimension, fewer considered the power dimension, and the number of studies which examined both dimensions simultaneously is even fewer. Yet different behaviors may have quite different meanings, depending upon their "location" along both dimensions. It seems quite conceivable, for example, that hostile submissive behavior, such as depression, would provoke more friendliness from others than aggressive and threatening hostile dominance. Furthermore, some aspects of the theory, such as Carson's (1979) prediction that submission will elicit more homogeneous responses than dominance will, have apparently received almost no exploration.

Second, while most of these studies investigated interpersonal behavior, they generally had little to say about the perceptions which presumably preceded those behaviors. Consequently, relatively little is known about the interrelationships between perception and behavior. This is particularly true in light of the evidence which suggests perception may not be consistently related to behavior. Several of the studies reviewed here, for example, found positive behavior occurring even when the expectations or the preceding behaviors were decidedly negative

(e.g., Alexander, 1973; Bond, 1972; Hokanson et. al., 1980; Margolin & Wampold, 1981; Mueller, 1969; J. Snyder, 1977). There is also evidence suggesting females may be less influenced, or even oppositely influenced, by their expectations and perceptions than males are (e.g., Bond, 1972; Eron, 1980, 1982; Jones & Panitch, 1971).

Third, many studies made virtually no attempt to control the behavior of the person the participants were interacting with (that is, the situation) at all. Instead, they observed naturally occurring social interactions, such as married couples or children at play. While natural observations are important in their own right, they still leave many questions unresolved. For example, were the differences observed in these studies due to some other aspect of these long term relationships? Were the differences due to the content of the interactions (what was said), which is not the focus of the theories proposed here, or to the style of these interactions (how it was said)?

In most of these studies, of course, the content of the interactions was not carefully controlled, if at all. And when the content was controlled, confounding variables were frequently introduced. Laboratory games, for example, must certainly introduce concerns over one's respective scores, and are generally designed in ways which inhibit conversational behavior. In addition, as implied by the aggression research, the norms for games, particularly competitive ones, may not be the same as for other forms of interpersonal interaction. Consequently, despite the initial optimism of Kelley and Stahelski (1970), there is still some debate as to how realistically these games portray everyday interactions.

Finally, the research examined here also suggests additional variables which may interact with the patterns predicted by Sullivan and

other interpersonal theorists. Adjustment would be one, since many studies reported differences between well adjusted and maladjusted groups of individuals. In particular, maladjusted persons were more prone to reciprocate hostility with hostility, to use power exploitatively, or to demonstrate an absence of contingent responding (e.g., Alexander, 1973; Hokanson et. al., 1980; Margolin & Wampold, 1981; J. Snyder, 1977). On the other hand, well adjusted persons were more likely to reciprocate friendliness (e.g., Alexander, 1973; Raush, 1965; Raush, Dittmann, & Taylor, 1959a, 1959b; J. Snyder, 1977). But the evidence is scanty and deserves more investigation, especially as it relates to psychological diagnosis.

In contrast to most of the work reviewed here, the current project was specifically designed to test this theory, and to do so under more suitably controlled conditions. Although adjustment did not enter into the initial hypotheses, it was considered in the post-hoc analyses.

Hypothesis 1

1. Interpersonal behavior will be systematically related to interpersonal perception.
 - a) There will be similarity with respect to the affiliative dimension. Friendly perceptions will be associated with friendly behaviors, while hostile perceptions will be associated with hostile behaviors.
 - b) There will be complementarity with respect to the power dimension. People will behave submissively when they perceive the other as dominant. They will respond with dominance when they regard the behavior of the other as submissive.

Hypothesis 2

2. Interpersonal behavior will be systematically related to the interpersonal style of the other.
 - a) There will be similarity with respect to the affiliative dimension. Friendliness will elicit friendliness, while hostility will elicit hostility.
 - b) Friendliness will elicit more between subjects variability in interpersonal responses (with respect to the affiliative dimension) than hostility will.
 - c) There will be complementarity with respect to the power dimension. Dominance will elicit submission and submission will elicit dominance.
 - d) Dominance will elicit more between subjects variability in interpersonal responses (with respect to the power dimension) than submission will.

A Clarification

Although these hypotheses may initially appear contradictory, they in fact were not. Hypothesis 1 was not concerned with the actual behavior of the other person, only with the perception of that behavior. As predicted by Chapter 1, perception may in fact be idiosyncratic and therefore vary considerably from person to person. These idiosyncrasies would not affect Hypothesis 1, but one would expect, if the hypothesis was confirmed, that distinctly different perceptions would be systematically related to behavioral variations.

Hypothesis 2, on the other hand, was not concerned with interpersonal perception. It was only concerned with the actual behavior of the stimulus

people, as judged by independent, trained experts. This hypothesis focused on the relationship between observable stimuli and behaviors. Sections 2.a and 2.c were concerned with mean tendencies in behaviors, while sections 2.b and 2.d made predictions about response variability.

Thus, it was hypothesized that the other person's behavior would lead to certain perceptions on the part of the participant, which in turn would lead to certain behavioral responses. The participant's behavior, a person by situation interaction, would hence be a function of both the actual behavior of the other and the participant's perception of that behavior. In addition, different stimulus styles could result in different pools of participant responses, which could vary in both their means and standard deviations.

Interpersonal perception was examined in this study for a number of reasons. First, as noted earlier, it represented an important link which has largely been neglected by interpersonal theorists. But if the theories of Chapter 1 are correct, we would nevertheless expect people to respond to their perception of a situation rather than the situation as it actually occurs. By including measures of interpersonal perception, was thus possible to determine what subjective biases, if any, were actually occurring. The perceptual measures also served as a check on the experimental manipulations. Suppose, for example, the predicted interpersonal responses did not occur. Was this because the participants failed to perceive the relevant differences in interpersonal behavior, or because the hypothesized relationships between perception and behavior were simply incorrect? The inclusion of these corresponding measures allowed us to differentiate between these possibilities.

In addition, the relationships outlined above essentially predicted

perceptual biases in certain individuals. It was speculated that when the two people were heterogeneous with respect to the affiliative dimension, the interaction was more likely to be hostile than it was to be friendly. The reasons for this are not clear, although they will be addressed in later chapters. Sullivan's (1953) theory implies, however, that the predominantly hostile individual is more responsible for this than the friendly one. We could speculate, for example, that hostilely inclined people fail to perceive friendliness. Similar relationships could also be predicted for power--perhaps extremely dominant individuals challenge dominance in others because they regard it as a manifestation of relative submission.

CHAPTER 4

THE FLEXIBILITY OF INTERPERSONAL PERCEPTION AND BEHAVIOR

Introduction and Theory

By observing the social interactions of individuals, patterns in interpersonal behavior emerge. If the individuals are homogeneous with respect to affiliation and heterogeneous with respect to power, stable relationships often result. The situation is different when there is heterogeneity along the affiliative axis and/or homogeneity in interpersonal power. But since the persons possessing some interpersonal attitudes seem to be more flexible in their behavior than the individuals possessing others, it is still possible to predict the outcome of even these interactions with a fair degree of accuracy. In general, predominantly friendly people appear to be more adaptable in their interpersonal behavior than those with hostile inclinations. Dominant persons vary more than submissive ones.

But where do these differences originate? One clue can be gained from the studies reviewed in the last chapter. In general, perception appeared to match overt behavior. This implies the differences in overt behavioral flexibility are a function of variability in perception. We could infer the perceptions of dominant and friendly individuals are more flexible than those of hostile and submissive ones.

The locus of attention has now been shifted from behavior to percep-

tion. But the essential problem--understanding, explaining, and predicting this variability--still remains. So far, our analysis has been handicapped by the fact that we have analyzed the problem from only one side--the influence of perception on behavior. A few enlightened authors considered the problem from the other side as well, namely the influence of behavior on perception. Although he apparently never stated it explicitly, Sullivan (1953, 1954/1970) repeatedly hinted at the possibility that certain behaviors, through their reciprocal impact on others, limited one's own interpersonal and perceptual growth. Thus, the childhood development of malevolence, he reported, "is perhaps the greatest disaster that happens in the childhood phase of personality development, because the kind of 'ugly'--as it is often called--attitude which it produces is a great handicap to the most profitable experience one could have in subsequent stages of development" (1953, p. 216).

Powers stated the principle quite simply; "What an organism senses affects what it does, and what it does affects what it senses" (1973, p. 41, emphasis original). And of course, the principle of reciprocal interactions between individuals and the environment, in which people literally help create what they perceive, has been widely accepted for quite some time (e.g., Anchin & Kiesler, 1982; Bandura, 1978; Bowers, 1973; Carson, 1969, 1975, 1979, 1982; Cashdan, 1973, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Kelley & Stahelski, 1970; Leary, 1957; Sullivan, 1953, 1954/1970; Wachtel, 1973, 1982; Watzlawick, Beavin, & Jackson, 1967). Kelley and Stahelski (1970) carried this a step further in their consideration of the phenomenological worlds of competitors and co-operators, which will be discussed later in this chapter.

But the most thorough consideration of the impact of behavior on

one's own perception, at least with regard to the circumplex model, appears to have come from Carson (1979). As noted before, persons who behave malevolently provoke hostility from others. Suppose they do this consistently. A few hardy souls may initially respond with friendliness, but even they are eventually provoked into hostility. Presumably, these individuals have been engaging in malevolent behavior since childhood; they know of no other justifiable way to behave. Unaware of their own stimulus value, their interpersonal learning is very consistent. They come to believe that sooner or later, everyone will unveil the basic human motivation, namely hostility. They have only one interpersonal protection, to be malevolent first--before others get a chance.

Now consider the experiences of those who have been basically affectionate. All would go well until they met their first malevolent person. As a result of this interaction, they would undoubtedly learn some individuals can not be trusted. But others, as proven by their previous experiences, can be. Their learning would be centered on discriminating between hostile and friendly individuals, and responding appropriately to each of them. The result, more flexibility in interpersonal behavior, would naturally follow.

According to Carson, rigidly submissive people probably experience the world in much the same way as hostile ones. Never taking the initiative, they would also avoid initiating interpersonal relationships. Instead, submissive individuals wait for other, more adventuresome souls to risk the first move. By definition, those others would be dominant, and by encountering only dominant others, rigidly submissive people would also come to develop very constricted psychological environments.

Dominant persons, on the other hand, would have more variable social

experiences. Sometimes their attempts to dominate would be followed by cooperation and obedience. Eventually, though, they would confront someone who wasn't so eager to obey, who would force them to submit instead. As a result, dominant persons would learn both dominance and submission, and not just the style they preferred.

When both interpersonal dimensions are taken into consideration, it becomes possible, as Carson (1979) has done, to make predictions regarding the flexibility of interpersonal conceptualization. Hostile submissive individuals would be handicapped by both hostility and submissiveness. Their perception would be limited to the recognition of hostility and dominance, resulting in a rigid, unadaptive interpersonal style. Hostile dominant individuals would be less constricted, since they would have the ability to maneuver between both dominance and submission. But basically, their perception would be limited to the identification of various forms of mistreatment, in which they were either the victim or the perpetrator. While they would possess more flexibility than hostile submissives, their interpersonal world would still be most unpleasant. Friendly submissive people gain the advantage of perceiving both friendliness and hostility, but would be restricted to self-concepts of relative weakness and powerlessness. Their interpersonal conceptualization and behavior would be unconstrained with regard to affiliation, but constricted with regard to power. Finally, friendly dominant individuals would not be handicapped by hostility or submissiveness. Their interpersonal conceptualizations would incorporate all basic interpersonal approaches. They would exhibit a corresponding degree of adaptive behavior.

Other related issues could be explored. To the extent people are

able to adapt their behavior to changing contingencies, they could also be expected to be considered well adjusted. This would imply different interpersonal styles, in addition to being associated with different types and degrees of interpersonal conceptualization, would also be associated with different types and degrees of psychopathology. Indeed, many authors (Carson, 1969, 1975, 1979; DeVoge, 1980; DeVoge & Beck, 1978; Hayden, Nasby, & Davids, 1977; Kiesler, 1979; Leary, 1957; McLemore & Benjamin, 1979; Millon, 1969; Mischel, 1973; M. Snyder, 1974; Wachtel, 1973) have already related conceptual and behavioral rigidity to maladaptive behavior while offering empirical evidence to support this. Furthermore, they have noted the interrelationships between the interpersonal system of diagnosis and more conventional diagnostic systems of psychopathology (Carson, 1969, 1975, 1979; DeVoge, 1980; DeVoge & Beck, 1978; Kannarkat & Bayton, 1979; Leary, 1957; Leary & Coffey, 1955; McLemore & Benjamin, 1979; Millon, 1969). Hostile submission, for example, appears to be related to depression and psychotic disorders such as schizophrenia. Hostile dominance is associated with aggressive, sadistic, narcissistic, and psychopathic personalities. Friendly submissiveness includes the neurotic disorders, such as hysterical personalities, dependent personalities, phobias, and anxiety neuroses. But friendly dominant individuals appear less susceptible to any psychopathology, except possibly psychosomatic ailments. In general, the most debilitating forms of psychological maladjustment seem to be associated with hostile submission, while the least debilitating forms are associated with friendly dominance.

Returning to perceptual and behavioral variability, the following predictions can be made. First, we would expect the perceptions and behaviors of maladjusted individuals, psychiatric inpatient populations

for example, to be less flexible and situationally specific than those of normal persons. Second, predominantly friendly individuals would be expected to be more differentiated in their affiliative perceptions and behaviors than people with more hostile inclinations. Finally, dominant individuals would be expected to be more flexible in their power-related perceptions and behaviors than submissive ones.

Situational Variability and Psychological Adjustment

The empirical literature, while still very limited, offers preliminary support for these predictions. In person by situation interaction studies, persons accounted for more variance than situations in inpatient psychiatric populations. But in normal populations, the situational variance was greater than the person variance, even though the same measures were employed (Alker, 1972; Argyle & Little, 1972; Ekehammar, 1974; Endler, 1973; Endler & Hunt, 1969; Mischel, 1973; Moos, 1968). Furthermore, repeated-measures studies with psychiatric inpatients have found the percentage of variance attributable to situations tends to increase during the course of treatment (Mariotto, 1978; Raush, Dittmann, & Taylor, 1959b). These differential results are important because they imply maladjusted people are less responsive than normals to environmental contingencies. Although the relative magnitude of person and situational effects can be experimentally manipulated, these studies were controlled by the use of identical situations (except for Moos, 1968), response measures, and in some cases, even identical subject populations (Mariotto, 1978; Raush, Dittmann, & Taylor, 1959b). Unfortunately, for the purpose of testing the predictions proposed here, many of these studies have had serious methodological flaws.

In Moos's (1968) study, for example, the objective situational differences were greater for normals than for inpatients, so his experimental discovery of this difference can hardly be considered enlightening. Both Moos (1968) and Endler and Hunt (Endler, 1973; Endler & Hunt, 1969) relied on self-report measures. So while their studies offer insight about perception, they do not address the issue of behavioral differences. Mariotto (1978) did use behavioral observations, as did Raush, Dittmann, & Taylor (1959b).

But these researchers (Endler, 1973; Endler & Hunt, 1969; Mariotto, 1978; Moos, 1968; Raush, Dittmann, & Taylor, 1959b) all used omega squared ratios for calculating variance proportions. Golding (1975a) has since criticized these ratios, stating generalizability coefficients for unit samples were a much more appropriate method. However, Golding (1975a) did calculate generalizability coefficients for Moos's (1968) and Endler's (1973) data. In Moos's study, person effects were still greater than situational effects for inpatients, while the reverse was true for normals. Endler (1973) compared normals, neurotics, and psychotics. Even with Golding's recalculations, the situational variance was greatest for normals, less so for neurotics, and even less for psychotics. The person variance was greatest for psychotics, lowest for normals. And in both patient samples, the person variance was greater than the situational one, while the reverse was true for normals.

Trower (1980) used independent evaluations from a psychiatrist, a psychologist, and a lay person to identify socially skilled and unskilled psychiatric patients. The patients then interacted with live models under changing social contingencies. Skilled patients, as measured by their speech behavior, were observed to be more responsive to situational

changes than unskilled ones. Except for two unskilled patients who smiled ten times more than anyone else, the skilled patients also displayed more smiling and gesturing, shifted posture more frequently, and engaged in more eye contact than their unskilled counterparts.

In summary, the variance proportion studies, while methodologically flawed, imply well adjusted individuals are more situationally specific in their perception and behavior than maladjusted ones. With regard to interpersonal style, of course, the evidence is circumstantial at best, since these studies did not directly consider the interpersonal styles of their participants. While we can speculate the relative proportion of hostility and submission was greater for unskilled psychiatric inpatients early in treatment than for normals or skilled patients later in treatment, there is no way of establishing this conclusively.

Interpersonal Behavior and Psychological Adjustment

Fortunately, a series of investigations by Raush and his colleagues (Raush, 1965; Raush, Dittmann, & Taylor, 1959a, 1959b) did consider the interrelationships between interpersonal style, psychological adjustment, and situational responsiveness. These investigators began by observing a group of six hyperaggressive boys in a residential treatment setting. Using the Leary system, they rated each boy's behavior in six different situations. The first set of ratings were collected when the boys were 9 to 11 years old. Persons and situations (using omega squared ratios) each accounted for small amounts of the overall variance; 44% of their affectional behavior toward adults was classified as hostile. The observations were repeated one and a half years later. The variance attributable to persons did not change much, but the situational variance had

more than doubled. Only 20% of the behavior directed toward adults was hostile and there was an increase in friendly passivity. The children were judged to be responding more appropriately, both in their relationships with peers and with adults. The investigators did not know whether to attribute these changes to increased age or to treatment, but they did note the changes were in the direction of treatment goals.

In a subsequent series of studies (Raush, 1965), the data from these patients was compared with similar data collected from groups of normal boys. The first two groups consisted of Americans, who were matched in age with the hyperaggressive boys and who lived on the hospital ward for several weeks during the summer. Another group consisted of Norwegian boys, ages 9 to 11, who were observed on an isolated Norwegian farm resort during the winter. All the boys lived in groups of six and were observed in roughly similar situations. Their behavior was coded as either friendly or unfriendly.

In line with the interpersonal predictions made earlier, Raush (1965) found it was the children's response to friendly behavior which discriminated between his subject groups. In the early patient sample, hostile behavior elicited hostility 75% of the time. For the patients later in treatment, the corresponding figure was 80%; for normals, it was 77%. Friendly behavior led to hostility 45% of the time in the early patient group. In the later treatment sample, hostility was elicited in response to friendliness only 19% of the time. And for normals, the corresponding figure was only 8%.

Sequential interactions were also examined over time. Among patients, Raush (1965) reported social interactions were less likely to begin with friendliness and even when they did, the interactions deteri-

orated rapidly. Some improvement was noted after the 18 months of treatment. American and Norwegian normals, however, were more likely to initiate friendly interactions and were able to maintain friendliness over longer periods of time. Unlike patients, they could "rescue" deteriorating interactions and continue emitting a high frequency of friendly responses.

Unfortunately, one's enthusiasm for the results of these pioneering studies must be tempered by the knowledge of how these observations were made and coded (Golding, 1975a; Raush, Dittmann, & Taylor, 1959b). The children were monitored by a number of different observers, but only one was present at any given time. The observers did not take notes, nor did they use watches or take advantage of any other recording devices. Periods of observation varied considerably, depending upon how fast the interactions occurred and how much the observer thought he could remember. He then left the area and dictated all of his observations involving a particular child at once. The interactions were later coded by others on the basis of the observer's dictations, or typescripts of those dictations, rather than actual behavior. Interrater reliability estimates were not reported. And obviously, how much bias, if any, was introduced by the lack of more rigorous observational procedures will never be known.

Relationships between friendliness and interpersonal adjustment, however, have emerged in other studies as well. Rotter (1980) reviewed the literature on interpersonal trust, which he defined as "a generalized expectancy held by an individual that the word, promise, oral or written statement of another individual or group can be relied on" (Rotter, 1980, p. 1). As such, interpersonal trust is a friendly strategy which Rotter clearly distinguished from gullibility or the naive belief that everyone

is good. The empirical results, according to Rotter, indicate trusting individuals are less likely to be regarded as unhappy, conflicted, or maladjusted than nontrusting ones. They are more likely to be sought as friends; Rotter also believed they were less likely to lie, cheat, or steal.

Comparisons of Distressed and Nondistressed Married Couples

Billings (1979) had distressed and nondistressed married couples enact conflict situations in the laboratory. The interactions were video taped by a remotely controlled camera and later rated by observers. Compared to nondistressed couples, distressed couples engaged in significantly more hostile dominant and more hostile submissive behaviors. They exhibited less friendly dominance.

Similar results were also reported by Vincent, Weiss, and Birchler (1975), as well as by Koren, Carlton, and Shaw (1980). J. Snyder (1977) also reported an increased frequency of displeasing behavior in problem families. On the other hand, Margolin and Wampold (1981) found no differences in the frequencies for negative behaviors, although nondistressed couples did engage in significantly more positive and neutral behaviors. Alexander (1973) reported more defensiveness in the families of juvenile delinquents than for normal controls. There were no significant differences in the supportiveness of the parents, however, either with each other or toward their adolescent. Delinquent teenagers were less supportive of their parents than nondelinquents.

The self-ratings of distressed couples, based on behavioral observations in the home, also indicated fewer instances of affection and more conflict than among their nondistressed counterparts (Jacobson & Moore,

1981; Robinson & Price, 1980; Vincent, Weiss & Birchler, 1975). When examined more closely, however, the results were no longer quite so simple. Robinson and Price (1980), for example, had well adjusted and poorly adjusted couples record the frequency of positive responses each spouse emitted and received. They were simultaneously rated by observers who also recorded the frequency of pleasurable responses. Observations were done in the home, and according to Robinson and Price, self-monitoring did not increase the frequency of pleasurable responses compared to earlier baseline measurements. Surprisingly, the observational data indicated both well adjusted and poorly adjusted couples engaged in equivalent rates of pleasurable behavior. But in their self-ratings, the well adjusted couples reported a much higher frequency of friendly behavior than the poorly adjusted ones, and the well adjusted couples were found to be more accurate. According to Robinson and Price, the poorly adjusted couples "consistently underestimated the rate of pleasurable behavior by approximately 50%" (1980, p. 118). Apparently, among these poorly adjusted couples (none of whom were in treatment), the failure was in the perception of pleasurable responses, not the emission of them. Another possibility is that the poorly adjusted couples derived less satisfaction from the "pleasurable responses" as defined by the experimenters, and consequently did not report them.

Jacobson and Moore (1981) had both members of their couples rate one spouse for six days, and then later rate the other spouse for six days. Their ratings were recorded on an observational checklist of 409 items. The researchers found no evidence of either a positive or negative selective bias in the ratings of the other spouse in either of their adjustment groups. Despite this, the spouses in well adjusted couples

did agree significantly more often than those in poorly adjusted couples. But even the nondistressed couples agreed only 52% of the time, which made them, in these researchers' eyes, unreliable observers of one another's behavior.

Jacobson and Moore's (1981) measure of agreement, however, consisted of the number of items both spouses checked divided by the number which were checked by either one or both of them. As a result, their agreement measure failed to include the instances in which the spouses agreed the behavior did not occur, and quite likely underestimated the abilities of all spouses to function as observers. Furthermore, since distressed couples endorsed fewer items than nondistressed ones, the inclusion of instances where both spouses agreed on the absence of behavior would have increased their agreement scores relatively more. In all cases, the interspouse agreement frequencies were also higher for objective, unambiguous behaviors than for those involving more inferential judgments.

Another marital interaction study (Gottman, Notarius, Markman, Bank, Yoppi, & Rubin, 1976)--like J. Snyder's (1977), Raush's (1965) and Robinson and Price's (1980) data--also suggested poorly adjusted people fail to perceive friendliness. Well adjusted and poorly adjusted couples were assigned communication tasks in the laboratory. Spouses indicated the intended affectional quality of their verbal statements and the impact their spouse's communications had on them. There were no differences in the spouses' positive versus negative intentions--distressed couples intended to be just as friendly as nondistressed ones. However, there were significant differences in the impact. Distressed spouses perceived more negative and fewer positive communications than nondistressed ones.

One problem with the marital interaction studies reviewed so far, however, is the fact that they have focused on marital interactions, on long-term intimate relationships. When spouses perceive and interact with one another, it is often difficult to know whether the outcomes are typical of the people involved, or whether they are specific to that relationship. The recent evidence suggests, however, that the results are in fact specific to the relationship.

Thus, Vincent, Weiss, and Birchler (1975) gave spouses oppositely biased information regarding who was more responsible for standardized conflict situations and instructed them to resolve their differences. The participants interacted not only with their own spouses, but with the opposite-sexed member of two other couples as well. One stranger came from a distressed marriage and the other from a nondistressed one. When paired with their own partners, distressed spouses engaged in fewer positive and more negative behaviors than nondistressed ones. But behavior with one's own spouse was not correlated with behavior toward an opposite-sexed stranger. With strangers, all participants made fewer negative statements and those from distressed marriages also made more positive ones.

Noller's (1980, 1981) results indicated this specificity extended to perception as well as behavior. The task in her study involved a series of 9 different statements for each spouse. When combined with the appropriate affect, each statement could be used to convey a positive, neutral, or negative meaning, for a total of 27 different messages. One partner read each message to the other, who then had to determine which affect had been intended. The couple's communication score was determined by the number of messages which were accurately decoded. Independent

observers also rated video tapes of the spouses sending the messages to assess the sender's ability to encode them. The other spouse's ability to decode the messages was determined by the proportion of good or well encoded communications which had been interpreted accurately. Well adjusted couples obtained higher communication scores than poorly adjusted ones, and the husbands of well adjusted couples were also better at encoding positive messages than those of poorly adjusted ones. Adjustment was not related to biases in decoding; rather, males tended to show a negative bias while females demonstrated a positive one. Although none of the groups had difficulty communicating negative messages, Noller (1980) noted that most of the errors for all messages were related to encoding rather than decoding. She therefore suggested Gottman et. al.'s (1976) results were obtained not because of perceptual biases, but because the poorly adjusted couples, especially the husbands, found it more difficult to enact the positive messages they intended to send.

Noller (1981) later had these same participants decode the same messages from video tapes of opposite-sexed strangers. On this task, the spouses of poorly adjusted couples were significantly more accurate than those of moderately adjusted ones, although not significantly different from the individuals in highly adjusted ones. They in fact decoded the video tape better than their own mates.

Laboratory Games: Another Visit

But with regard to the present purposes, the research presented so far is subject to a major methodological limitation. Rather than selecting participants according to their interpersonal styles and then examining their psychological adjustment or conceptual or behavioral flexibility,

they proceeded in the opposite order. Samples of well adjusted or maladjusted individuals were identified and then examined with regard to their interpersonal styles. While this approach has enlightened us about the interpersonal strategies utilized by well adapted and poorly adapted individuals, it has failed to indicate whether the interpersonal style in and of itself is related to limitations in conceptual or behavioral flexibility. To conduct a study of the latter type, it would be necessary to obtain a sample of normal individuals, and examine both their interpersonal styles and their variability on other conceptual or behavioral measures. Although they have generally involved laboratory games with college students, a few studies have adopted this approach.

As mentioned earlier, Smelser (1961) worked with heterogeneous and homogeneous pairings of dominant and submissive individuals. Heterogeneity with respect to power was found to enhance cooperative performance when dominant and submissive individuals were assigned their accustomed interpersonal roles. However, homogeneous dominant couples performed better than homogeneous submissive ones, both with assigned and unassigned leadership positions. In homogeneous couples, one member of the pair was required to fulfill a role contradictory to his preferred interpersonal style. The superior performance of dominant individuals under these circumstances implies greater flexibility in their interpersonal behavior, and perhaps in their perceptions as well.

Kelley and Stahelski's (1970) studies, also mentioned earlier, offer additional evidence. In their studies, homogeneous pairs of cooperators made many more cooperative moves than homogeneous pairs of competitors. However, when cooperators were paired with competitors, it was the cooperators who altered their behavior while the competitors pursued their usual

strategy. The result was that these pairs engaged in considerably more competition than homogeneous pairs of cooperators. When questioned about their perception of their heterogeneous partner's goals, cooperators, in general, accurately perceived their partners as competitors. Competitors were less accurate and often characterized their partners as similarly competitive. Since the cooperators had in fact behaved competitively, this perception was not unreasonable. But later studies indicated the competitors were unaware of their own influence in changing the cooperators' strategies. Furthermore, they believed competition was typical in these situations. Cooperators, however, reverted back to cooperative strategies when subsequently paired with homogeneous partners. They were aware of the influence the competitor had in altering their behavior, and were much more divided about the typical behavior of people in a similar situation. On the basis of their own and other researchers' studies, Kelley and Stahelski concluded cooperators believed others were heterogeneous with regard to cooperation and competition, while competitors tended to assume everyone was competitive. These conclusions, needless to say, match our earlier predictions.

Laboratory game studies by Kuhlman and Wimberly (1976), however, were more equivocal. They replicated Kelley and Stahelski's results using cooperators and competitors in a prisoner's dilemma paradigm. However, Kuhlman and Wimberly also broke the affiliative dimension down into four categories consisting of altruists, who sought to maximize their partners' scores; cooperators, who maximized their joint scores; individualists, who sought to enhance only their own scores; and competitors, who engaged in maximizing their own scores while simultaneously trying to minimize their partner's scores. They also employed other laboratory

games in which these various strategies would lead to different choices. Participants were asked to indicate the percentage of people who would make each choice. In general, all the participants expected most people to make choices similar to their own. One possible reason for these differences may have been the way the researchers posed the question. Kelley and Stahelski asked their subjects what the typical person would do, while Kuhlman and Wimberly asked them to assign percentages to each choice. Another possibility may lay in the expectation gradients for each group. While Kuhlman and Wimberly's data suggested each group expected others to respond in much the same way they did, the groups could still differ in the slopes of their expectation gradients. Perhaps the slope is steeper for competitors than for cooperators.

Messé and Sivacek (1979) explained a one trial-prisoner's dilemma game to female undergraduates and asked them to indicate their own choice, the predicted choice of their partner, and the predicted choice of a person in another dyad. Competitors and cooperators were distinguished on the basis of their own choice. Both groups expected their partners and others to make choices similar to their own. Thus, even though they phrased the question in the same way Kelley and Stahelski (1970) did, their results were similar to those of Kuhlman and Wimberly (1976).

But, since predicting one's next move is apparently not equivalent to predicting their overall strategy (Kelley and Stahelski, 1970), the responses under a one-trial game such as this may not have been guided by the same issues as those involving extended interactions (Messé & Sivacek, 1979). One major difference, for example, was the lack of opportunity to attempt a trusting relationship. In addition, the issue of response gradients was still not examined.

In Kelley and Stahelski's (1970) formulation, however, cooperativeness versus competitiveness was essentially a trait dimension which distinguished between two types of people. It was assumed people could be characterized in terms of this dimension and that their dispositions were stable. A primary outcome of the more recent person-situation controversy, however, has been the realization that situational factors do interact with person ones, and that not all people are equally situationally consistent. Indeed, much of the more recent research with prisoner's dilemma games suggested the outcomes were not just determined by the dispositions of the players, but were also influenced by situational variables, such as the payoff matrix (Bixenstine, Lowenfeld, & Englehart, 1981; Kuhlman & Wimberly, 1976; Messé & Sivacek, 1979). People may behave cooperatively under one payoff matrix and competitively under another. Even under the same matrix, they may adopt different strategies on different occasions. To the extent that people do change, they will also have opportunities to observe the differential impact of their behaviors.

Thus, Bixenstine, Lowenfeld, and Englehart (1981) tried asking previously diagnosed cooperators and competitors to adopt the opposite strategy. After switching roles, but before actually playing, they were again asked what the typical person would do. Of the 39 competitors who initially expected competition, 19 (or almost half) now stated the other would cooperate. Since Kelley & Stahelski (1970) found half of their cooperators predicting cooperation and half predicting competition, these results suggested that in addition to being able to play a reasonably cooperative game (which Bixenstine et. al. also established), competitors could adopt the perceptual outlook of a cooperator. If competitiveness was the stable disposition Kelley and Stahelski seemed

to think it was, this raises questions, as Bixenstine et. al. (1981) noted, as to how the supposedly un insightful competitors learned the perceptual views of the presumably more sophisticated cooperators. One possible answer, unfortunately, is from the experimenters themselves. Thus, the participants were asked about the choice a typical person would make, given a list of arguments justifying the stance the experimenter asked them to assume, and then immediately questioned again about the preferred choice of the typical person. Consequently, experimental demand can not be ruled out as a possibility.

But when cooperators were asked to assume a competitive strategy, a large portion of those who initially expected cooperation from others continued to do so (14 out of 22). This was difficult to explain, especially since the cooperators in general had shifted expectancies more readily than the competitors, including when they were specifically instructed to maintain their cooperative stances (Bixenstine et. al., 1981). They were also less likely to shift their strategies spontaneously, even when the experimenter requested them to do so. Whether Bixenstine et. al.'s cooperators would change strategies as readily as Kelley and Stahelski's (1970) did in the face of a competitive partner is not known. But their results do leave one wondering who is really more flexible than who.

Although Kelley and Stahelski's (1970) original propositions have not actually been disproven, the perceptual outlooks with respect to this dimension are obviously not well understood. In particular, investigators should be sensitive to the role of situational factors and to the possibility that not all people are situationally consistent with respect to this dimension. Indeed, even Kelley and Stahelski (1970) speculated about

situations to which their "triangle hypothesis," at least as originally proposed, could not legitimately be extended.

Perceptual Biases and Perceptual Accuracy

One of the major problems with laboratory games, of course, is the fact that they are games, and one can never be certain as to how closely they actually represent the complexity of interpersonal interactions. They are also limited by the fact that they do inhibit interactions. In many cases the participants never even see their opponent, and they are often misled as to who their real opponent is. As a result, questions about the motivations of others may have more to do with one's conceptions of normality than with one's actual skill in interpersonal perception.

There are additional issues to be addressed as well. Most of the studies reviewed so far have not considered perceptual accuracy as a skill in and of itself; the primary concern has been with behavior or adjustment instead. Although some of the marital interaction studies did examine ability to decode messages, the primary interest, except for some of Noller's (1981) work, was limited to understanding one's mate. Furthermore, Noller's (1981) research indicated the perception of one's spouse is apparently independent from being able to understand others. This raises questions as to whether people can be characterized in terms of their perceptual accuracy, and, if so, whether this ability is related to interpersonal style. A related issue is that of perceptual bias, in particular, understanding when and how it operates.

In an effort to explore perceptual accuracy, Cline and Richards (1960) made extensive studies of people they initially contacted in supermarkets, on the street, or in university classes. These studies included

video taped interviews, a large number of personality tests, and interviews with five close associates of the person they were studying, who also rated the target. Multiple choice questionnaires were then developed separately and individually for each target; the questionnaires for different targets contained different items. These tests consisted of five parts, including predicting the target's responses to MMPI items, sentence completion tests, and adjective check lists; the target's behavior in specific situations; and trait ratings of the target as viewed by close associates. Fifty college summer students viewed the initial interviews with ten targets and then completed the corresponding questionnaire on each of them. They were given accuracy scores for each of the five subtests on each target. Split half reliabilities between the first five targets and the second five targets ranged from .66 to .79. Intercorrelations among the five subtests were all positive and all but one were statistically significant. The accuracy scores were then subdivided into Cronbach's component scores of elevation, differential elevation, stereotype accuracy, and differential accuracy. The correlations involving these components and the subtests were generally positive, although not always significant. The investigators concluded "a general, global ability to judge others accurately can be meaningfully measured" (p. 5). They believed this ability, like intelligence, was factorially complex, with the two largest components being stereotype accuracy and differential accuracy.

Walker, Marwit, and Emory (1980) matched 48 hospitalized process schizophrenics with normal controls with respect to their current age, gender, and educational achievement. All participants were then asked to sort 32 photographs of adult male and female faces into the proper

emotional categories of joy, anger, surprise, disgust, shame, fear, sadness, and interest. Even though there were no systematic differences in their performance on the Wide Range Achievement Test, the schizophrenics consistently scored lower than the normals. The authors suspected the chronic social withdrawal of process schizophrenics reduced their opportunities to observe and participate in normal emotional expression. This in turn could have impaired their ability to perceive it.

In another study, however, the less adapted persons outperformed the normal controls (Hoehn-Hyde, Schlottmann, & Rush, 1982). Depressed women, depressed women in remission, and normal controls all viewed a series of nine video-taped scenes. Each scene portrayed a male actor directing positive, neutral, or negative comments toward another. Half of the women were asked to imagine the comments were directed toward themselves; the others imagined they were intended for someone else. Each scene was rated on an evaluative dimension that was obtained by factor analyzing the ratings on 11 bipolar semantic differentials. The results indicated all of the scenes involving others were evaluated more negatively than those concerning one's self. This difference was particularly strong for the normal participants' evaluation of negative comments. Depressed women differed from normals only when they were the recipients of the negative remarks. Here, the scores of those in the other and self conditions were virtually identical. Assuming one's assessments of others are more objective than self evaluations, the investigators concluded it was the depressed women who demonstrated superior accuracy. Similar results involving self-ratings were also reported by Mischel (1979). He further noted that as depressed persons improved over the course of psychotherapy, their self ratings became

increasingly positive but also more discrepant from those of independent observers.

In another early study by Murstein (1961), 536 male undergraduates ranked the members of their fraternities or dormitories with respect to the hostile-friendly dimension. Each student's score on this dimension was equivalent to the standardized mean ranking he received from the members of his living group. The students' self-rankings were compared to their hostility-friendliness scores as a measure of insightfulness. Minimal discrepancies indicated high insightfulness; large ones were interpreted as low insightfulness. Extreme groups of hostile insightful, hostile noninsightful, friendly insightful, and friendly noninsightful students were subsequently selected. Each of these students was assigned an overall perceptual accuracy score, depending upon the sum of the discrepancies between his rankings of the members of his living group and the mean ranks which were assigned by the remainder of his group. The friendly groups were both determined to be more accurate than either of the hostile ones, and within each style, the insightful students were more accurate than the noninsightful ones.

Nasby, Hayden, and DePaulo (1980) used 40 photographs of the same woman portraying a large number of feelings, which varied with respect to the positive-negative and dominance-submission dimensions. In their first experiment, they showed all 40 photos to 32 emotionally disturbed boys in residential treatment. The boys had to determine which of two specified alternatives best described each picture, and their choices were then examined in relation to their aggressiveness as evaluated by the hospital staff. Aggression was not correlated with overall accuracy, but was positively correlated with endorsing negative-dominant alternatives, both

when these choices were correct and when they were incorrect. In addition, aggression was negatively correlated with selecting positive submissive alternatives, regardless of whether or not they were accurate. Choices in the remaining two quadrants were unrelated to aggression. This implied the more aggressive boys were biased specifically toward choosing negative dominance, and not just negativity or dominance. However, when both of the choices encompassed different forms of negative dominance, aggression was uncorrelated with selecting the proper alternative. Consequently, the aggressive bias toward negative dominance did not seem to reflect superior accuracy with respect to expressions within this quadrant.

Since the categories were selected by the experimenters, it was still not clear how the boys organized their perceptions on their own. To explore this aspect, Nasby, Hayden, and DePaulo (1980) conducted a similar study with the same subject population. This time, 40 boys were shown 20 photographs from the same set as before. They were asked to arrange the pictures according to which ones expressed the same or similar feelings, and then to indicate what those feelings were. They continued sorting and resorting the pictures until each boy's categories had been exhausted. Aggression was positively correlated with the tendency to describe negative dominant affects, but was uncorrelated with the use of labels from the remaining quadrants, including the positive submissive one. The negative dominant categories of boys who scored above the mean in aggression included as many non-negative dominant pictures as actual negative dominant ones. Unfortunately, since Nasby, Hayden, and DePaulo were unable to obtain a normal control group, it is not known whether their results, especially the tendency for unaggressive boys to overattribute

positive submission, would extend to normal populations as well. The biases they reported could be correlated with interpersonal style, or they could be specific to the styles of maladjusted individuals.

But Golding (1975b, 1977) did find evidence of selective biases in the perceptions of normals; they were additionally related to the perceiver's interpersonal style. He began by developing 29 interpersonal vignettes exemplifying hostile submissive, hostile dominant, friendly submissive, and friendly dominant stimulus and response behavior. College students completed various personality scales and rated one figure in each vignette on eight semantic differentials. Tucker and Messick's "points of view" analysis was applied to the vignette ratings to identify consistent individual opinions of stimulus differences. Seven roots accounted for 69.7% of the variance and were rotated to obtain maximum correlations with the personality scales of affiliativeness, defensive hostility, desirable dominance, cognitive structure, competitiveness, dependency, and Machiavellianism. Affiliatives attributed positive qualities to others, hostile students attributed negative ones, but desirable dominance was unrelated to mean attributional tendencies. Variability in stimulus figure ratings was greatest for friendly dependents and smallest for competitors. The average student in Golding's study assigned almost three times as much weight to the affiliative dimension as to the power dimension. In contrast to this, desirably dominant persons relied almost entirely on the affiliative dimension. Hostile dominant students assigned most of the weight in their ratings to the power dimension, as predicted by Carson's interpersonal theory.

A Theoretical Disagreement:
Leary versus Carson

The research reviewed here generally indicates friendly individuals are usually more adaptable than hostile ones, as predicted by Carson's (1969, 1979) theory. But some theoretical and empirical differences should be noted. In contrast to Carson, Leary (1957) believed adaptiveness was associated with low intensity interpersonal styles rather than with friendly dominance per se. Studies by Messé, Stollak, Larson, and Michaels (1979) appear to support Leary's (1957) theory, at least in some instances. Messé et. al. produced a video tape of a child engaging in equal numbers of positive and negative behaviors with an adult. A large sample of college students viewed the tape and subsequently indicated how many positive and negative acts they thought the child engaged in. From this pool, Messé et. al. selected persons who reported mostly positive actions (positively biased), persons who reported mostly negative actions (negatively biased), and persons who saw equal numbers of each (accurate perceivers). These individuals participated in two interactions which were rated by observers. The first consisted of playing with a child in the experimental laboratory. In the second, the student and a confederate completed an attitude questionnaire and then had to attempt an agreement on the items they disagreed on.

Compared with accurate perceivers, negatively biased students engaged in more dominance and less helping with the child, while positively biased persons also did more structuring. The children were less dominant with negatively biased adults and most helpful with accurate ones. When trying to resolve their disagreements with a confederate, however, the interactions involving positively biased persons were judged to be

more negative than those involving accurate or negatively biased individuals. Messé et. al. concluded accurate perceivers were more flexible and performed better in both positive and negative social encounters. They believed negatively biased perceivers had more difficulty in positive interactions such as playing with a child, while positively biased ones had difficulty resolving conflict situations. Their results also substantiate Kelley and Stahelski's (1970) report of an "overassimilation" effect among cooperators, who--once having discovered their partner was a competitor--sometimes competed even more than their competitive partners. It should be noted, however, that although each student's behavior was rated in both types of situations, their biases were measured in only one of them.

Critical Issues

By logically extending Hypotheses 1 and 2, friendly and dominant people were predicted to be more adaptable in their interpersonal behavior than hostile and submissive ones. This adaptability could emanate from more accurate (consensually valid) interpersonal perceptions. But as noted by Carson (1979) in particular, these styles apparently elicit more variable reactions from others. This would not only increase the range of interpersonal behaviors these people were exposed to, but it would also allow friendly and dominant persons the opportunity to develop more differentiated psychological environments.

However plausible this scenario may be, it suffers from a major setback, namely the paucity of studies designed to test it. This author knows of no research aimed at determining whether exposure to a wider variety of interpersonal behaviors does in fact lead to greater perceptual

differentiation and accuracy. Furthermore, as indicated by the review in the last chapter, it is not yet clear that friendliness and dominance do invariably elicit a broader range of interpersonal reactions than hostility and submission. The results are suggestive, but the investigation has by no means been extensive.

In the absence of research which pursued these relationships directly, potential outcomes of these processes were explored instead. In particular, friendly individuals were predicted to show greater perceptual accuracy and behavioral flexibility with respect to the affiliative dimension than hostile ones. Dominant persons were expected to be more accurate in their power-related perceptions, and more situationally specific in their behavior with respect to the power dimension, than submissive ones. Finally, since maladjusted persons appear to gravitate toward styles of hostility and submission (Carson, 1969, 1975, 1979; DeVoge, 1980; DeVoge & Beck, 1978; Kannarkat & Bayton, 1979; Leary, 1957; Leary & Coffey, 1955; McLemore & Benjamin, 1979; Millon, 1969), it was anticipated that they would exhibit reduced perceptual accuracy and behavioral flexibility in comparison to normals.

In the work reviewed here, maladjusted persons did demonstrate less behavioral flexibility and perceptual accuracy than their better adjusted counterparts (Alker, 1972; Argyle & Little, 1972; Ekehammar, 1974; Endler, 1973; Endler & Hunt, 1969; Golding, 1975a; Mariotto, 1978; Mischel, 1973; Moos, 1968; Raush, 1965; Raush, Dittmann & Taylor, 1959a, 1959b; Trower, 1980; Walker, Marwit, & Emory, 1980). However, this statement must also be qualified by some rather substantial cautions. First, as noted earlier, many of the studies were methodologically flawed, only a few (Raush, 1965; Raush, Dittmann & Taylor, 1959b) examined interpersonal style in the first

place, and even they have been sharply criticized on methodological grounds (Golding, 1975a). Second, only a couple of these studies compared the perceptual accuracy of normals and maladjusted persons, and the results were not consistent. Although schizophrenics were less accurate (Walker, Marwit, & Emory, 1980), depressives were equally accurate in their perceptions of others and more accurate in their impressions of themselves (Hoehn-Hyde, Schlottmann, & Rush, 1982; Mischel, 1979). Third, the assessments of maladjusted persons occurred only during the most acute phases of their "illnesses," when they were either hospitalized or involved in psychotherapy. It is not known whether their responses were typical of their performance in general, or whether the deficits were directly related to not feeling well, the stress of coping in a hospital environment, or the difficulty of facing an acute life crisis. Furthermore, when psychiatric patients enter the hospital, their medications are typically manipulated in a wide variety of ways. The problem of adapting to changes in drug regimens could thus constitute a further source of physical and psychological discomfort which is not experienced by the normals. Thus, while our theoretical interest is in stable, person-based individual differences, the research has confounded these differences with responses to acute life changes.

It is tempting to extend the results of these studies with maladjusted persons to distressed marriages and families as well, but the literature reviewed here indicates such an extension is not a valid one. First, since complementary relationships are predicted for the power dimension, one would not normally expect both spouses to be rigidly submissive (although if they were, it could be a source of distress). Second, distressed spouses do not universally engage in more hostility

than nondistressed ones (Margolin & Wampold, 1981; Robinson & Price, 1980). Instead, it may be the contingencies which differ, rather than the frequency of the hostility itself (Margolin & Wampold, 1981). Finally, being a member of a distressed marriage is apparently not equivalent to being a maladjusted individual. Thus, the perceptual and behavioral biases which distressed spouses may demonstrate with one another do not necessarily extend to other relationships as well (Noller, 1980, 1981; Vincent, Weiss & Birchler, 1975). It could be argued, of course, that the intimacy of the relationship is the critical factor, since in the research reviewed here, marital communications were compared only to interactions involving strangers. But the success of many second marriages among previously divorced individuals would argue against the universal equivalence of marital and personal maladjustment. And while the apparent specificity of marital interactions may force us to alter our theoretical perspectives, it is also much more reassuring to know that later relationships can succeed even after previous ones have failed.

But what about the direct relationships between interpersonal style, behavioral flexibility, and perceptual accuracy? Raush (1965) found normal boys were both friendlier and more flexible than those in residential treatment, but it could have been the psychopathology, rather than the hostility itself, which made his emotionally disturbed youngsters more rigid. Smelser's (1961) and Kelley and Stahelski's (1970) studies also support the hypotheses, but the norms for laboratory games may not be the same as those for ongoing interpersonal interactions. In addition, Smelser's (1961) work has apparently not been replicated, and subsequent prisoner's dilemma studies raise as many questions as they answer (Bixenstine, Lowenfeld, & Englehart, 1981; Kuhlman & Wimberly, 1976; Messé &

Sivacek, 1979).

Meanwhile, behavior does appear to be related to perceptual biases, but not necessarily in the way Carson (1979) predicted. Thus, while aggressive boys showed the expected trend toward perceiving hostile dominance, unaggressive ones were not unbiased, but biased in the opposite direction on some measures (Nasby, Hayden, & DePaulo, 1980). However, since all of these boys were emotionally disturbed and under residential care, these results, particularly those involving the unaggressive boys, may or may not generalize to normal populations. Messé et. al. (1979) did find a positive relationship between perceptual accuracy and behavioral flexibility, but both these variables appeared to be enhanced by stylistic neutrality rather than the friendliness Carson predicted. Golding's (1975b, 1977) and Murstein's (1961) research did support the predictions, but in general, this mixture of results suggests the critical variables have not yet been identified.

This is, of course, a very difficult area to research, which undoubtedly accounts, at least in part, for the relative lack of definitive, well controlled studies. It is also an area where small changes in methodology seem to make rather large differences in the outcome, as witnessed by the prisoner's dilemma research. Despite this, interpersonal perceptions and behaviors are vital to human existence, and it behooves us to understand these issues as thoroughly as possible.

Ideally, Carson's speculations would be tested with longitudinal research aimed at determining whether some styles do elicit a wider range of behavioral reactions than others, and if so, whether these reactions lead to a corresponding increase in perceptual differentiation and accuracy. Unfortunately, such research is time consuming and costly,

particularly in terms of trying to identify and control all the relevant developmental and interpersonal variables. In the face of more limited time and resources, we can also examine, as was done here, the outcomes one would expect from these processes. These outcomes can still enhance our understanding, we can obtain them sooner, and they can also indicate whether a longitudinal approach would be worthwhile. The results obtained so far are suggestive, but it is clear there is still much we do not know.

In particular, the relationship between perceptual accuracy and interpersonal style has apparently never been investigated in a study involving actual controlled interpersonal interactions, and has seldom been examined with respect to both the power and affiliative dimensions simultaneously. It was this aspect which was selected for further examination here. If Carson's (1979) theory is correct, friendly persons will be more accurate with respect to the affiliative dimension than hostile ones. Similarly, dominant persons will exhibit more accuracy in their power-related perceptions than submissive ones. The corresponding relationships between interpersonal style and the variability of the elicited reactions were already examined under Hypothesis 2.

Hypothesis 3

3. There will be a systematic relationship between preferred interpersonal style and ability to recognize other interpersonal styles.
 - a) Increased friendliness in preferred interpersonal style will be associated with increased accuracy in perception with regard to the affiliative dimension.
 - b) Increased dominance in preferred interpersonal style will be associated with increased accuracy in perception with regard to the power dimension.

CHAPTER 5

THE MAINTENANCE OF INTERPERSONAL STYLE

Introduction and Theory

As noted in previous chapters, there appear to be consistent and systematic relationships between interpersonal conceptualization and behavior. To the extent that interpersonal styles are successful in eliciting reciprocal interactional behavior, relatively enduring styles of perception, as well as behavior, are also reinforced and maintained. So far, however, we have been concerned primarily with environmental constraints on interpersonal conceptualization. It has been proposed that conceptual flexibility is a direct function of the variability of responses people elicit through their own interpersonal styles. In other words, very potent styles, such as hostility and submission, elicit consistent responses from others, resulting in narrow and constricted interpersonal points of view. Less potent attitudes, such as friendliness and dominance, elicit a greater variety of responses from the social environment, resulting in a more varied and flexible perception of interpersonal behavior. While these environmental constraints appear to exert strong influences on interpersonal conceptualization, interpersonal theorists have also speculated about other sources of experiential constraint. In particular, individuals, whether intentionally or unintentionally, are also thought to exert control over their own conceptualization and subsequent behavior.

Sullivan (1953, 1954/1970), for example, theorized about dynamisms,

each consisting of "a relatively enduring pattern of energy transformation" (1953, p. 109). He believed these patterns were responsible for maintaining homeostasis within the organism. Many of these hypothesized dynamisms were biochemical in nature. They regulated the function of various bodily organs, protected the body against disease and temperature extremes, and satisfied the need for oxygen, nutrients, and energy. However, another dynamism, which Sullivan labeled the "self-system," was indispensable in minimizing anxiety and maintaining interpersonal security. The self-system operated by anticipating and avoiding, as much as possible, all anxiety provoking thoughts, feelings, and experiences. It accomplished this through the manner in which interpersonal events were perceived and organized, by the development of characteristic interpersonal attitudes, and by the operation of defense mechanisms such as selective inattention, dissociation, and sublimation.

The development of the self-system was governed by the reciprocal theorem of emotion, in which children learned to avoid or at least minimize anxiety by adopting reciprocal interpersonal approaches to the manner in which they were treated. In doing so, children developed "foresight," or anticipation of the most probable responses they would receive from others. As long as their anticipations were confirmed, even if they were not happy ones, individuals were able to minimize anxiety through the operations of their self-systems. Consequently, they became invested in confirming their anticipations. As expressed in Sullivan's "theorem of escape:"

The self-system from its nature--its communal environmental factors, organization, and functional activity--tends to escape influence by experience which is incongruous with its current organization and functional activity. (1953, p. 190)

Sullivan was quite vague as to how the self-system was to avoid incongruity. But presumably, this would be accomplished through the use of its typical mechanisms--by selective attention and alterations in the perception and organization of experience--and by the maintenance of certain interpersonal attitudes which would evoke reciprocal behaviors from others.

Carson (1969, 1979, 1982) was strongly influenced by Sullivan and hypothesized a basic need for "self-confirmation," in which individuals looked to others to reinforce their conceptualizations regarding themselves. Building on Secord and Backman's "balance theory," Carson (1969) outlined five processes by which individuals could avoid incongruity and achieve self-confirmation. Briefly, they were (1) cognitive restructuring, (2) selective evaluation, (3) selective interaction, (4) evocation of congruent responses, and (5) congruency by comparison (p. 238).

All of these intrapsychic processes could be utilized to justify the maintenance of a particular interpersonal style. For example, suppose individuals were deeply committed to preserving their hostile submissive-ness. They could (1) misperceive other people's intentions, regarding friendliness as a means of enticing them into an exploitative relationship in which they would later be victimized. Submissiveness in others could be interpreted as either rejection or patronizing ridicule. (2) Nonreciprocal approaches from others could simply be discounted or ignored, while hostility and dominance could be interpreted as highly significant, insightful, and relevant. (3) Interactions, unless initiated by hostile dominant bullies, could be systematically avoided. (4) The adoption of a rigidly consistent and intense style of hostile submission should efficiently and effectively provoke others into hostile dominance.

Finally, (5) our determined individuals could simply regard themselves as weaker, sadder, and more easily victimized than anyone else they knew. Having successfully engaged in all of these maneuvers, these hostile submissive enthusiasts would probably be quite justified in their conclusion that everyone else was hostile dominant, at least in their approach to them. Chances are, they would also be unaware of their own role in precipitating and maintaining their current circumstances. However, if they were seriously committed to pursuing hostile submission as a profession, there is a handbook explaining how this might be accomplished (Greenburg & M. Jacobs, 1966). Its methods are similar to those described here, but embellished with considerably more creative detail.

Carson and Sullivan essentially hypothesized individuals will select and modify their interpersonal experiences, matching them to an internal set of standards regarding their conceptualizations of themselves and others. But these are ideas which have not been limited to interpersonal theory. Although they failed to mention the need for self-confirmation or the avoidance of anxiety as a motivating factor, Darley & Fazio (1980) have since presented a similar model of expectancy confirmation from a social psychological perspective. And as noted in Chapter 1, many theorists distinguished between the physical and psychological environments--distinctions made in the attempt to account for idiosyncratic differences in behavior despite constant objective environments.

Powers (1973), for instance, declared:

the brain's model of reality as far as consciousness is concerned, is reality--there is nothing else to perceive . . . when one acts to affect reality, he is acting so as to affect his model, and he has no inkling, save for physics, of what he is doing to the external world in the process of making his brain's model behave in

various ways. (p. 24)

The central aspect of the brain's model in Powers's (1973) theory were specific "reference conditions," or conditions of homeostatic balance which required no further responses. These reference conditions could be individually specific, but the principle goal of the brain was to maintain them at all times. It received neural impulses concerning a myriad of physiological and psychological states, quickly compared them with the corresponding reference conditions, and acted to correct any perceived discrepancies. Most of this occurred with little or no awareness on the part of the individual; indeed, some of it even took place at the reflex level.

Powers (1973) further conceived of a hierarchy of reference conditions, each with its corresponding psychophysiological mechanisms for maintaining it. At the lowest levels were the most basic physiological responses common to a wide variety of organisms. They included the control of such vital aspects as physical sensations, muscular tension, posture, and balance. Higher levels were responsible for the perception of transitions such as time or movement; of sequence, so that we could maneuver through a variety of posture shifts in order to carry out an action; of relationships between the various aspects of the environment as we perceive it. At the highest levels were the systems particularly characteristic of human beings; the control of thoughts, values, strategies, and principles. For Powers, one who perceived honesty as an important principle would attempt to function in such a way that honesty could be perceived in his or her lower-order behaviors. Knowledge of one's own dishonesty would create error messages in this perceptual system, which, if large enough and chronic enough, would be experienced

as anxiety. Like Sullivan and Carson, Powers believed anxiety was aversive and that the organism would reorganize its functioning in order to avoid it. Unfortunately, this reorganizing was aimed only at reducing the original error message and nothing else. It could involve behavioral change. But it could also involve the avoidance of tempting circumstances, selectively forgetting the occasions when one was dishonest, distorting those events into perceptions of honesty, changing the criterion of honesty, or even abandoning the principle entirely. In short, these errors could be reduced by any of the mechanisms previously discussed by Carson and Sullivan. The principle difference in Powers's (1973) model, however, was his careful integration of psychology and neuroanatomy. While our current lack of knowledge forced him to be rather speculative about the higher-order systems, the lower ones were thoroughly grounded on neuropsychology and even assigned to specific areas of the brain.

Perceptual psychologists have demonstrated individual differences in the perception of laboratory stimuli, differences which in turn were related to individual differences in needs, values, and defense mechanisms (e.g., Bruner, 1957; Bruner & Goodman, 1947; Postman & Bruner, 1947; Postman, Bruner, & McGinnies, 1948). Bruner (1957), for example, reported people could differ in the perceptual cues they utilized, in the accessibility of the various categories in which they classified perceptual events, and in their readiness to perceive certain events rather than others. Although he applied his theory mainly to the perception of physical events, he clearly recognized its application to social perception as well.

Bower (1981) has since demonstrated the influence of mood on perception, learning and memory. In one study, for example, participants

maintained a daily diary of personal experiences. When asked to recall those events under hypnotically induced moods, the tendency was to recall those events which were congruent with the induced mood. In reading, sad persons attended to the unhappy aspects of stories, while happy readers attended to the positive ones. Through patterns such as these, Bower (1981) speculated moods could be self-perpetuating, that one could extend moods by selective attention or mood congruent experiences. The self-control of moods was another distinct possibility--hence the existence of parties and victory celebrations to maintain euphoria and the use of pleasurable activities to avoid dysphoria. In addition, by focusing on memories, especially vivid ones, attention to current events is diminished (Powers, 1973).

Noting the importance of affect as well as cognitions, Zajonc (1980) reported, "Affective reactions can occur without extensive perceptual and cognitive encoding, are made with greater confidence than cognitive judgments, and can be made sooner" (p. 151). One implication of Bower's (1981) and Zajonc's (1980) work is the possibility that affects, anxiety in particular, could thus play a major role in the processing of interpersonal information. For Sullivan (1953, 1954/1970) and Carson (1969, 1979, 1982), the avoidance of anxiety was what motivated the drive for self-confirmation in the first place. Indeed, Sullivan once stated anxiety was so unpleasant that "only one other experience--that of loneliness--is in this special class of being totally unwanted" (1954/1970, p. 95).

R. Solomon (1980) has since observed that events which are initially unpleasant can become affectively positive, even exhilarating, after repeated exposures. Among other things, his opponent-process theory of

acquired motivation may help explain how initially aversive events, like parental hostility, could not only result in habituation, but in later attempts to elicit hostility from other sources.

Social behaviorists also recognized individual differences in the meaning and value people attach to environmental stimuli and reinforcement contingencies. Mischel (1973), for example, reviewed the empirical literature and concluded people differed in their ability to develop conceptualizations which accurately reflected environmental contingencies. He stated people also differed in the cues they focused on; in the way they organized and categorized their perceptions; in their expectancies regarding the outcome of certain behaviors and stimulus events. Individual differences were additionally noted in the affective, motivational, and reinforcing values attached to stimuli; in attempts at self-regulation; and the rules people applied in the evaluation of their own behavior (Mischel, 1973, 1979).

Bandura (1978, 1982) further explored the reciprocal relationship between people and their environments, with a special emphasis on self-regulation and the perceptions of one's own coping abilities. He asserted individuals did not passively respond to environmental contingencies, not even to their own idiosyncratic perception of them. Instead, they continually observed, evaluated, modified, and additionally reinforced their own behavior when it fulfilled certain self-determined standards. They were not necessarily dependent on others to set standards or distribute rewards. In fact, Bandura claimed intrinsic rewards were sometimes more gratifying than extrinsic ones. A variety of factors were involved in the self-evaluation of behavior, including which aspects one focused on, how highly the activity was valued, whether it was regarded as self-

initiated or imposed by others, and the standards used for comparison. Bandura, like Carson and Sullivan, further reported one's internal standards were not absolute and could be influenced by defensive processes. For instance, one could develop moral justifications for reprehensible conduct; responsibility for such conduct could be displaced onto others; the consequences could be minimized or misconstrued; the victim could be blamed.

Consequently, even beyond the limited domain of interpersonal theory, there is evidence of individual differences in the perception of environmental stimuli, in the conceptualization of contingencies, and in the self-regulation of behavior. Once these differences are established, there is further evidence indicating how they could be reinforced and maintained, both at the cognitive and affective levels. But once addressed, these differences are assumed to be idiosyncratic (Bandura, 1978, 1982; Mischel, 1973, 1979). Knowledge of individual differences in one area does not specify predictions about differences in other areas (DeVoge, personal communication, 1979). This restricts our ability to predict generalization gradients or understand intrapsychic processes. Even worse, our lack of understanding handicaps the treatment of interpersonal disorders. DeVoge (1980; DeVoge & Beck, 1978), for example, has noted that in practice, behavior therapists have treated praise and approval as universal reinforcers, despite evidence to the contrary. Jacobs and Warner (1981) reported some patients actually deteriorate in the presence of high therapeutic empathy. A method for predicting client responsiveness to different therapeutic treatments is still needed.

Carson's (1969, 1979, 1982) interpersonal theory does allow such predictions to be made, at least on a global level. Presumably,

individuals will prefer to interact with others who manifest reciprocal behavior. They will, if possible, avoid intimate encounters with nonreciprocal interactants, due to the intense anxiety resulting from disconfirmatory feedback. Interpersonal communications and interactions will be distorted in the direction of preconceived notions regarding the self and others. Since maladjustment is usually (not always) associated with greater than average hostility and submission, it becomes easy to suspect maladjusted persons would be less responsive to friendly and submissive interpersonal approaches. Since the norm of reciprocity appears stronger for the affiliative dimension than for the power one, friendliness could be particularly aversive. Carson's principles have received considerable support in the writings of other interpersonal therapists (e.g., Anchin, 1982a, 1982b; Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Cashdan, 1973, 1982; Chrzanowski, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Duke & Nowicki, 1982; Kiesler, 1982b; Peterson, 1982; Wachtel, 1982; Young & Beier, 1982), but the empirical literature in this area is very sparse. Few studies have systematically attempted to relate individual differences in interpersonal style to conceptualization, or even to preferences regarding the interactional behavior of others.

Perceptual Biases

As noted in Chapter 4, there is empirical evidence of perceptual biases that are meaningfully related to interpersonal behavior (Golding, 1975b, 1977; Gottman et. al., 1976; Kelley & Stahelski, 1970; Kuhlman & Wimberly, 1976; Messé & Sivacek, 1979; Messé, Stollak, Larson, & Michaels, 1979; Nasby, Hayden, & DePaulo, 1980; Robinson & Price, 1980). In general, these studies indicated poorly adjusted and hostile persons

often fail to perceive friendliness, even when it is intended and apparent to others. Although there has been some controversy regarding how generalized these tendencies are (e.g., Bixenstine, Lowenfeld, & Englehart, 1981; Hoehn-Hyde, Schlottmann, & Rush, 1982; Kuhlman & Wimberly, 1976; Messé & Sivacek, 1979; Mischel, 1979; Noller, 1980, 1981), their existence has not been questioned. And whether universal or specific to a particular relationship, such biases do contribute to overly inclusive conceptualizations of hostility.

Even more intriguing is the apparent persistence of these perceptual biases into situations where they are clearly incongruent with the individual's own behaviors and circumstances. Widom (1976) observed this in the interactions of homogeneous pairs of psychopaths and normals in a prisoner's dilemma paradigm. Psychopaths were quite capable of making cooperative responses, at least for the duration of the experiment in which the contingencies were clear and stakes were considered high. Consequently, there were no significant differences in either the frequency of cooperative responses, or in the prediction of cooperation from partners. Despite this, the psychopaths described themselves and their partners as "competitive," "gambling," and "opponents." Normals characterized themselves and their partners as "collaborators," "accomplices," "cooperators," "partners," and "team workers."

In another study (Hokanson, Sacco, Blumberg, & Landrum, 1980), normal students, depressed students, and nondepressed students with other psychological problems were all paired with normal partners in a prisoner's dilemma paradigm. Power was manipulated by informing the second person of the first person's choice prior to making her or his own. This knowledge gave the second person considerable control over the consequences

for both persons. The participants also exchanged messages by completing experimenter-provided check lists at designated intervals. The behavior of depressed persons in the high power-role was generally exploitative and noncooperative. But they nevertheless persisted in communicating self-devaluation, helplessness, and sadness.

As indicated by a number of authors (e.g., Bruner, 1957; Darley & Fazio, 1980; Salomon, 1981), expectancies tend to persist, regardless of the actual relationship. A similar, more positive form of self-confirming bias is to assume greater agreement with one's intimates than is actually the case. This was examined by Levinger and Breedlove (1966), who asked married individuals to predict the responses of their spouses on an attitude questionnaire they also completed for themselves. Assumed agreement was considerably greater than actual agreement; it was also positively correlated with marital satisfaction.

Behavioral Reinforcement

Behavior research and therapy has been based on the principle of reinforcement, in which positive outcomes must follow the targeted actions in order to increase their frequency. Behavioral theories, meanwhile, have emphasized individually specific preferences while noting the wide range of possible reinforcers which could be used. Despite this, behaviorists in practice have typically relied on "standard reinforcement contingencies," or in other words, on praise and social approval (DeVoge, 1980; DeVoge & Beck, 1978). Since praise and approval are definitely friendly and usually dominant in interpersonal style, one would expect them to be preferred by friendly submissive individuals and avoided by hostile persons, especially hostile dominant ones.

In an early study by Mandler & Kaplan (1956), college students were instructed to say as many different words as they could think of. The experimenters followed each plural noun with the verbal response "Mm-hmm." As revealed in postexperimental interviews, some students interpreted this response positively, as encouragement to continue, or as an indication they were doing well. They increased the targeted behavior. Other students, however, extinguished their use of plural nouns. They were later found to have interpreted the experimenter's verbalizations negatively, believing the comments indicated they were going too fast or giving the wrong kind of words.

College students in another study (Marlowe, 1962) completed the Marlowe-Crowne Social Desirability Scale and were subsequently interviewed by the experimenter, who stated "Mm-hm" each time the student made a positive self-reference. Students who scored high on social desirability increased the targeted behavior. Low scorers failed to increase the targeted response and were not significantly different from "nonreinforced" controls. Presumably, the individuals who were especially concerned about their social desirability were also more responsive to social approval.

Another experiment (Cairns & Lewis, 1962) examined the relationship between dependency, as measured by the Deference and Autonomy scales of the Edwards Personal Preference Schedule, and susceptibility to verbal conditioning. College students were given lists of verbs with instructions to use one of them in a sentence. The experimenter responded with "Mm-hmm" following the use of certain kinds of verbs. Later, the students rated the pleasantness of the experimenter's responses and completed the Docile-Dependency scale of the Interpersonal Check List. Docile-Dependency

was positively correlated with the other dependency measures and with subjective evaluations of the experimenter's responses. In general, highly dependent students gave positive evaluations of the experimenter's comments and showed conditioning of the targeted response. Students who scored low on dependency typically regarded the "approval" responses as nonpositive and additionally exhibited counterconditioning. They decreased their use of the designated verbs.

DeVoge (1980; DeVoge & Beck, 1978) has since reviewed the behavioral literature from an interpersonal point of view. He reported:

the results of a number of studies on verbal conditioning lead to the conclusion that there are subject populations who do not respond well when praise and approval are employed as reinforcers. One group, shown repeatedly to be unresponsive to praise and approval, is hospitalized schizophrenics . . . In fact, it has been demonstrated that schizophrenics have actually outperformed (i.e., offered assistance more frequently to a patient who had fallen from his crutches) college students when there was no apparent opportunity to earn a reward . . . In order to make a social stimuli such as the word "good" reinforcing, this stimulus has had to be paired with non-social reinforcers . . . a phenomenon analogously reported with juvenile delinquents . . . (DeVoge, 1980)

In addition, DeVoge and Beck (1978) reported anxious persons, who are generally submissive in their interpersonal styles, have consistently conditioned better to praise and social approval than persons low in anxiety. Dependent persons conditioned better than hostile ones. A few studies found some people, particularly ones who were hostile or incompatible with the experimenter, decreased the targeted response while being conditioned with praise and approval and increased it during extinction. In one study, anxious subjects were significantly more reluctant than nonanxious persons to elicit disapproval from an interviewer, even when they were being reinforced for doing so.

J. Snyder (1977) observed the interactions of problem and nonproblem

families in an effort to understand their differential use of, and response to, reinforcement contingencies. Problem families consisted of families in which the parents reported behavioral problems with their school-aged son and marital difficulties, although none of the families had previously been in treatment. Interactions between the parents and their son were observed in a laboratory living room. In addition, the family members rated each other's behavior on its pleasing and displeasing qualities.

Nonproblem families were found to behave in ways which would increase the probability of pleasing behavior and decrease the frequency of displeasing behavior. Compared to problem families, they exhibited less displeasing behavior and reacted to pleasing behavior with more positive reinforcement and fewer aversive consequences. Displeasing behavior received more punishment and less positive reinforcement than in problem families. Punishment was also associated with the suppression of unpleasant behavior.

In problem families, however, "there were no contingencies. The probability of receiving a positive, neutral, or aversive consequent was independent of the behavior displayed" (J. Snyder, 1977, p. 533). In fact, in line with Carson's interpersonal predictions, punishment seemed to increase the frequency of displeasing behavior.

Relationship Preferences

Although powerful in and of themselves, selective biases in interpersonal perception and idiosyncratic evaluation of common social reinforcers do not represent the only means of facilitating self-confirmatory feedback. Another possibility is to limit one's social interactions, or

to confine them only to people with certain interpersonal styles. In particular, we would expect avoidance to be characteristic of hostile submissives and reciprocal styles to be preferred over nonreciprocal ones.

In line with these predictions, depressed patients in therapy have reported less frequent interactions, and more discomfort in their daily interactions, than normal controls or nondepressed persons with elevated MMPI profiles (Youngren & Lewinsohn, 1980). They also derived less positive reinforcement from their social interactions, and reported being especially uncomfortable giving and receiving "positive interpersonal responses" (p. 337).

W. H. Jones, Freeman, and Goswick (1981) differentiated between lonely and nonlonely college students on the basis of the UCLA Loneliness Scale. Contrary to their hypothesis, it was the lonely students who actually expressed less interest in social relations. With the exception of the lonely people considering each other less socially responsive, lonely persons were not rated differently by others after fifteen-minute dyadic interactions. Despite this, they evaluated their partners more negatively. Loneliness was also positively correlated with a pessimistic view of humanity, and negatively associated with acceptance of others or the feeling one was acceptable to others. It was related to feelings of powerlessness, normlessness, social isolation, distrust of others, and a view of the world as an unjust place. Finally, when the students of a human relations course evaluated themselves, classmates, and themselves as perceived by classmates, differences again emerged. Lonely females rated themselves more negatively than nonlonely ones, and expected others to do the same. Lonely males perceived themselves more negatively, anticipated more negative ratings, rated others more negatively, and received more

negative evaluations on the pretest but not the posttest.

As noted in Chapter 2, researchers have reported considerable long-term stability in aggressive behavior (Eron, 1980, 1982; Olweus, 1979). Aggression persists, despite the obvious punishment and negative social reactions it elicits. Aggression is also a dominant style, which indicates these individuals are not the unwilling victims of circumstance. Instead, for whatever reasons, they initiate much of the bullying and other antisocial behaviors which eventually bring them trouble (Olweus, 1979). Given the persistence of aggression, even in the face of punishment, it is easy to speculate about the relational preferences of aggressive individuals. Further, as noted earlier, there is also evidence suggesting that for angry people, knowledge of the victim's pain and suffering can be especially rewarding (Berkowitz & Donnerstein, 1982; Sebastian, Buttino, Burzynski, & Moore, 1981).

Relationship preferences were also explored by E. E. Jones (1954), who administered the Authoritarian F Scale to Navy recruits. The recruits then listened to tape-recorded interviews with the fictitious platoon leader of another regiment. The personal power (forceful versus passive) and leadership attitude (democratic versus autocratic) of the leader was varied from subject to subject. Authoritarians evaluated the leader more positively than nonauthoritarians, regardless of the leader's qualities. Authoritarians were more wary about the leadership ability of the democratic leader and preferred the autocratic leader more than the democratic one. Nonauthoritarians, however, preferred the democratic leader.

Assor, Aronoff, and Messé (1981) noted reciprocal preferences with respect to the power dimension. College students completed shortened versions of the Dominance scale of the CPI and the Succorance scale of the

Edwards Personal Preference Schedule (as a measure of dependency). They then viewed a video tape of a male and female performing three different tasks. All students were told one member of the pair was a highly successful advanced graduate student, while the other was just someone who did routine work around the university. But half were told it was the female who earned the high status, while half were informed it was the male. Following this tape, the figures were evaluated on a series of bipolar dimensions.

The participants did not differ significantly in their overall ratings of the target figures, as long as their supposed status was ignored. However, highly dependent and low dominant students evaluated the high status person more positively than the low one, regardless of who it was. On the other hand, low dependent and highly dominant students favored the low status person, while neutrals showed no significant differences in their ratings of the two.

In another study, relationship preferences with respect to both dimensions were investigated simultaneously. In their first session, female college students in Edquist's (1973) study were briefly interviewed by the experimenter, with the interview being recorded on audio tape. In their second session, the students were led to believe they and four other participants were listening to the previously recorded interviews between themselves and the experimenter. In reality, the students were seen individually and the four other participants were specially designed stimulus figures representing friendly dominant, friendly submissive, hostile dominant, and hostile submissive interpersonal approaches. The participants then exchanged written messages with each of the stimulus figures, in which they conveyed their initial impressions of one another.

In doing so, the participants were naturally given bogus feedback in which the style of the messages were consistent with the attitude of the figure who supposedly wrote them. Interpersonal attraction was measured in a variety of ways and related to the students' interpersonal styles as measured by the Interpersonal Check List and the Personality Research Form. In general, similarity for the affiliative dimension was supported, but complementarity in power was not. Friendly students preferred friendly figures; hostile students favored hostile ones. If anything, however, dominant participants favored dominant ones while submissive students were most strongly attracted to submissive figures.

In a final experiment reported by Duke and Nowicki (1982), a "complementary" relationship was defined as one in which there was similarity with respect to affiliation and complementarity in power. In an "anticomplementary" relationship, however, there was similarity in power and complementarity on affiliation. Male college students were selected on the basis of their interpersonal styles as measured by the Interpersonal Check List, and their scores on a locus of control scale. Each was shown two short video tapes depicting a client and therapist, in which the client's style was similar to that of the participant. In one tape, the therapist demonstrated complementary behavior, while in the other, the therapist's style was anticomplementary to that of the client and student. Internals and externals were equally accurate in their perceptions of the therapists, as measured by the Impact Message Inventory. But when compared with the internals, the externals were found to be more attracted to the anticomplementary therapists, and according to Duke and Nowicki, this was largely because they misperceived their own behavior. Thus, the externals were attracted to therapists they erroneously believed were complementary

to their own behavior. The authors further stated their informal post-hoc analyses indicated the externals actually were accurate in the perception of their own verbal behavior, but this behavior was incongruent with their nonverbal style. Unfortunately, Duke and Nowicki's (1982) hasty review failed to mention how they measured self-perceptions or verbal and nonverbal interpersonal styles.

Self-Presentational Strategies

Having selected a target to interact with, one can theoretically further encourage self-confirmatory feedback by presenting a reciprocal interpersonal approach. Unfortunately, most of the research in this area had been conducted from a situational perspective rather than exploring individual differences. Despite this, these self-presentational trends can be seen in Widom's (1976) psychopaths, who described themselves as "opponents" despite their cooperative behavior; and in Hokanson et. al.'s (1980) depressives, who reported feelings of helplessness even while enacting a high power role. Two other studies also resulted in meaningful individual differences.

In the first (M. Leary, 1979), college students completed self-ratings of interpersonal style and served as the leaders of problem-solving groups. They then completed a questionnaire they thought would be shared with the group prior to working on a second task. Compliant students emphasized their social desirability, and indicated they felt it was important for a leader to get along well with the group. They also reported feeling closer to the group members than low-compliance students, and expected greater group cohesiveness on future tasks. Aggressive (dominant) students emphasized the importance of the leader's interper-

sonal power and made it clear to others they wanted power within the group. Detached (hostile submissive) individuals, according to Leary, "adopted response strategies which seemed designed to increase the interpersonal distance between themselves and others" (1979, p. 455). They were less concerned about friendliness and were pessimistic about group cohesiveness in the future.

Sacco and Hokanson (1982) differentiated between depressed and nondepressed college students on the basis of the Beck Depression Inventory and a short form MMPI. The students were then assigned a perceptual laboratory task in which bogus feedback was given. The session was divided into two blocks of eleven trials each. On one block, the students were told they did very well, while on the other, they were informed their performance was relatively poor. In addition, the students assigned themselves positive or negative credit after each trial, and for half of them the evaluations were made publicly, while the other half were led to believe they were completely anonymous. No significant differences were obtained when the low performance block preceded the high one. However, when high success was followed by low success, the nondepressed students assigned themselves considerably less credit in the private condition than in the public one. Depressed students, meanwhile, showed no significant differences between the two conditions.

After each block of trials, the participants also rated their overall satisfaction with their performance. No significant differences were noted for the successful series, but on the unsuccessful one, depressed students rated themselves much more negatively in the public condition than in the private one. The investigators concluded their study supported an interpersonal model of depression rather than a

cognitive one, since the "cognitions" apparently changed, depending upon the presence of another person.

Hypothesis Confirmation

As noted by Darley and Fazio (1980), the process of self-confirmation is not confined to one person. The perceiver does enter interactions with pre-existing biases, anticipations, and preferences. Furthermore, as shown in earlier sections of this chapter, many of these conceptualizations are meaningfully related to interpersonal style and appear to influence the perceiver's behavior toward others. But the targets of these actions are also discriminating individuals, who interpret the perceiver's actions as best they can and respond on the basis of those interpretations. In theory, due to the relatively strong norms of similarity on affiliation and complementarity in power, these targets could then become unwitting accomplices in the maintenance of the perceiver's initial conceptualizations.

Do these processes actually occur? Unfortunately, the vast majority of the research has not been concerned with interpersonal style. But the empirical evidence does suggest this interactional sequence of expectancy confirmation is not uncommon (e.g., Darley & Fazio, 1980).

One way of confirming interpersonal expectations is through the biased collection of information, as demonstrated by M. Snyder and Swann (1978b). Prior to an interview with another student, female college students were provided with personality descriptions of introverts or extraverts. Their task was to determine whether the target fit those descriptions. A list of potential questions was supplied; the students selected twelve for use in the interviews. The targets' interview

behavior was then recorded and rated by naive judges.

Students consistently selected questions which were biased in favor of supporting the personality descriptions, even when they had reason to believe these descriptions would be disconfirmed, or were offered large incentives for choosing balanced questions. Extraverted characterizations led to the selection of questions biased toward descriptions of extraverted behavior; introverted profiles led to questions biased in favor of introversion. Furthermore, the behavior of the randomly assigned targets confirmed the hypothesized profiles.

Many of the laboratory studies discussed in Chapter 3 also provided evidence of interactional confirmation. In S. C. Jones and Panitch's (1971) prisoner's dilemma study, males who thought their partners liked them were more cooperative than those who assumed they were disliked. By the end of the study, their male targets, who were unaware of the bogus feedback, also liked the males in the like condition better than those in the dislike condition. The cooperation of the targets in the two conditions did not differ, however, nor were these effects significant for the female participants.

M. Snyder and Swann's (1978a) game involved a competitive reaction-time task where the participants could use a "noise weapon" to distract their opponent. Males who expected hostile targets used more noise and consequently received more noise than those who expected nonhostile targets. Needless to say, this only reinforced their initial impressions of the target.

When the targets were told their use of noise was positively correlated with their own intrinsic hostility, the hostilely labeled ones opened their subsequent game with a naive perceiver with more noise than

the nonhostilely labeled ones. But when targets were given situational attributions for their noise use, their behavior with a new partner did not differ across the two labeling conditions.

In another study (M. Snyder, Tanke, & Berscheid, 1977) males were misled into believing the female they were conversing with on a laboratory intercom was either very attractive or unattractive. The women actually represented an unselected sample of college females and were not aware of the men's impressions. In contrast to those who believed their partners were unattractive, men who thought their partners were attractive expected them to be more sociable and were more sociable themselves. The supposedly attractive women responded with more sociability than those assumed to be unattractive.

The relationship between expectancies and subsequent behavior is apparently not always a straightforward one, however, as demonstrated by Bond (1972). His female undergraduates were tested in groups of three. One expected to interact with a warm person, one expected to meet with a cold one, and the third, who was unaware of this bogus information, met with each of the other two. By all accounts, however, the interactions were warmer when the students expected a cold and unresponsive partner. Postexperimental interviews indicated these women had purposely tried to be very friendly in an effort to draw their partners out. The reciprocal warmth of the person they met was thus an indication of the effectiveness of their strategy.

A final study by Mueller (1969) focused on changes in the client-therapist relationship over the course of psychotherapy. Audio tapes of the first session and half-hour segments from four later sessions were utilized for each client. Leary's (1957) circumplex of 16 categories was

then used to code the clients' and therapists' statements on an act-by-act basis. In addition, the raters coded the clients' descriptions of their interactions with their parents and significant others. Over the course of therapy, the clients' behavior toward their therapists became increasingly similar to their reported responses to their parents and significant others, thus providing interpersonal evidence of transference. But the therapists also changed. Their reactions became increasingly similar to those the clients described receiving from their parents and others.

Critical Issues

Psychopathology consists of disordered interpersonal conceptualizations and behavior (e.g., Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Carson, 1969, 1975, 1979, 1982; Cashdan, 1973, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Kiesler, 1979, 1982a, 1982b; Leary, 1957; McLemore & Benjamin, 1979; Millon, 1969; Mischel, 1973; Sullivan, 1953, 1954/1970). The interactional process of self-confirmation is a complicated one which deserves a great deal of attention. If Sullivan (1953, 1954/1970) and Carson (1969, 1975, 1979, 1982) are correct, this process has enormous implications for the development, maintenance, and treatment of psychopathology. By thoroughly understanding the self-confirmation process, especially as it relates to individual differences in cognitions and behavior, more effective therapeutic techniques can be developed, applied more efficiently, and with considerably less harm. Already there is empirical evidence indicating high therapeutic empathy seems to harm some individuals while helping others (Jacobs & Warner, 1981), that the responses to "positive reinforcement" in behavior

therapy are less than consistent (DeVoge, 1980; DeVoge & Beck, 1978), and that therapists, even experienced ones, can easily become unwitting accomplices in the maintenance of their clients' interpersonal styles (Heller, Myers, & Cline, 1963; Mueller, 1969).

But the research in this area, although reasonably extensive (e.g., Darley & Fazio, 1980; Salomon, 1981), seems to have missed the point. First, it has typically been conducted from a situational perspective. Participants were selected from a relatively homogeneous population and their expectancies were then manipulated by providing them with various types of pre-interaction information. Even when stable individual differences were considered, it was differences among targets, not the participants, that were generally the focus of the investigation. Furthermore, these differences were more likely to be academic ability than interpersonal style (Darley & Fazio, 1980).

Beyond that, two critical aspects have largely been neglected. First, as noted by Darley and Fazio (1980), the focus has been on the outcomes rather than the process. These outcome studies, as noted in this chapter, have established that expectancies can be confirmed through the process of interaction. But clinicians are faced with the prospect of changing, through their own interactions, the very expectancies which are most central to their clients' interpersonal conceptualizations (e.g., Anchin, 1982a, 1982b; Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Carson, 1969, 1975, 1979, 1982; Cashdan, 1973, 1982; Chrzanowski, 1982; Kiesler, 1979, 1982a, 1982b; Sullivan, 1953; Wachtel, 1982; Young & Beier, 1982). To do this effectively, they need to understand the process and how it can be modified. Furthermore, this knowledge must be derived from the analysis of important, individually specific, and

enduring conceptualizations--not the passing thoughts that are aroused by the experimenter's purposeful use of misinformation. In particular, the interactional process of self-confirmation is truly a bidirectional one in which both individuals have a stake in what happens. As noted by Salomon (1981), this makes everything much more complicated.

The other critical aspect, which was also neglected in the adoption of a situational perspective, is the influence of anxiety. To Carson and Sullivan, anxiety was critical; in the empirical research, anxiety has been totally ignored. It is, of course, an extremely difficult issue to tackle, and this investigator can not offer any simple solutions. But anxiety is the critical issue; it is the most essential challenge.

Beyond that, as noted by Salomon (1982), the expectancy-confirmation process is not necessarily one of confirming false expectancies. It may in fact be one of maintaining expectancies which happen to be accurate. In a similar vein, it is also possible that the adoption of certain perceptual biases is actually beneficial rather than harmful (e.g., Hoehn-Hyde, Schlottmann, & Rush, 1982; Levinger & Breedlove, 1966; Mischel, 1979; Rotter, 1980). In all probability, for example, there are situations where it is much better to hope than to give into the most dispassionate and objective evaluation of the circumstances. Hope may also be critical in maintaining and eventually fulfilling one's personal aspirations.

The empirical evidence presented in this chapter indicates self-confirmation can be facilitated in a wide variety of ways, and the theories suggest the number of possible techniques is even greater. In particular, perceptual biases, overassumption of agreement, differential evaluation of social approval, avoidance of social interaction, selective choice of

interactional partners, self-presentational strategies, biased hypothesis testing, and reciprocal evocation have all been found to elicit behavior which would maintain the initial expectancies and interpersonal style. These demonstrations imply a human tendency for self-confirmation is very much alive and active. But their extensiveness or operation with respect to specific interpersonal styles or psychological disorders is not yet well understood. We do not know when these processes are adaptive and when they are maladaptive. We do not know when expectancies lead to behavior which further reinforces those expectancies, as demonstrated by the vast majority of the work reviewed here, or when they lead to efforts to change things for the better, as demonstrated by Bond (1972). There is also some suggestion that people may sometimes prefer similar others rather than reciprocal ones (Edquist, 1973). Sex differences have been reported, and it is entirely possible that females, in comparison to males, are more concerned with maintaining positive interactions than with responding in accordance with their initial expectancies (e.g., Bond, 1972; S. C. Jones & Panitch, 1971; W. H. Jones, Freeman, & Goswick, 1981). The stage of the relationship may also be another critical factor (Duke & Nowicki, 1982; Edquist, 1973; Peterson, 1982).

In addition, there are methodological issues which need to be addressed. In general, interpersonal style has been measured with paper and pencil questionnaires rather than behavioral observation. This means the stylistic measures are confounded by perceptual biases which are theoretically assumed to be less than accurate. Furthermore, the same processes which bias one's perceptions or expectancies of others may also bias self-perceptions of interpersonal style. Consequently, instead of demonstrating relationships between perceptions and expectancies on the

one hand and behavior on the other, these studies may actually be relating two different forms of interpersonal perception.

Another major issue concerns the manner in which preferences are assessed. As noted by Edquist (1973), interaction patterns are not necessarily congruent with personal preferences. People may find themselves unable to get along with the persons they prefer and consequently choose others instead. Their interaction patterns might not reflect actual preferences, but instead attempts to modify the behavior of the other, or the influence of nonstylistic contingencies such as economic or social status. This last part, for example, could be a critical factor in the interactional patterns of psychotherapists.

Further, as indicated by Duckro, Beal, and Clay (1979), expectations in the form of what one feels he or she deserves from others are not equivalent to expectations in terms of anticipations of what will actually happen. It may also be useful to investigate specific preferences and anticipations instead of relying on global assessments (Duckro et. al., 1979). Seldom does one do everything with the same individual or even want to. Instead, people look to a variety of different relationships to fulfill a variety of different needs, interests, and activities.

Finally, there may be differential effects associated with how the anticipations are created and acted upon. Typically, the participants are rather bluntly informed by the experimenter that the other person does not like them, is hostile or incompetent, or whatever. This process of being informed by an authoritative third person might not be the same as discovering the information on one's own. Being bluntly informed may not be the same as developing suspicions but still wondering about them and consequently attempting to check them out. Having the information

put in the experimenter's terminology may in fact convey different meanings from what the participants might determine on their own. Finally, subsequent interactional opportunities are generally limited. The participants, for example, do not get to question the other about why they are disliked or explore the possibility for a more constructive approach. Yet in terms of self-confirmation, the knowledge of why one is disliked may be more important than the actual presence of liking or disliking.

The current study, of course, was not a panacea for all the thorny problems described here. These issues can not adequately be addressed in only one study, especially one designed to explore other hypotheses as well. In addition, much of the work described here was not available at the time the study was designed, but has still contributed to the investigator's expanding conceptualizations in this area.

Hypothesis 4

4. There will be a systematic relationship between preferred interpersonal style and anticipations regarding future interactions. People will anticipate better interactions when the other engages in reciprocal behavior than when the other engages in nonreciprocal behavior.
 - a) When the behavior of the other is basically friendly, friendly persons (as measured by the preferred interpersonal style scores) will anticipate better interactions than hostile ones will.
 - b) When the behavior of the other is basically hostile, hostile persons (as measured by the preferred interpersonal style scores) will anticipate better interactions than friendly ones will.
 - c) When the behavior of the other is basically dominant, submissive persons (as measured by the preferred interpersonal style scores)

will anticipate better interactions than dominant ones will.

- d) When the behavior of the other is basically submissive, dominant persons (as measured by the preferred interpersonal style scores) will anticipate better interactions than submissive ones will.

PART II

METHOD AND PRELIMINARY INVESTIGATIONS

CHAPTER 6

METHOD

Introduction

The hypotheses, while focused on interpersonal perception and behavior, also amounted to speculations about the nature of person by situation interactions. The methodological goal therefore consisted of enhancing these interactions in order to examine them more closely. Each participant was accordingly exposed to each situation. Person by situation interactions were maximized by selecting a broad range of participants, and designing situations in a manner which would permit a wide variety of interpersonal perceptions, behaviors, and anticipations. Error variance was minimized by carefully controlling other extraneous situational and methodological factors.

The subject populations consisted of normal college students and psychiatric inpatients. Although these populations could be expected to differ on a large number of demographic variables, the most striking difference was expected to be in their overall level of psychological adjustment. As noted in earlier chapters, there was reason to believe psychological adjustment may be correlated with interpersonal style along both dimensions, as well as with behavioral and perceptual flexibility. Thus, a combined sample of college students and psychiatric inpatients was expected to demonstrate a wider range of interpersonal perceptions and behaviors than either group considered alone. In addition, by

examining each sample separately, one could make more informed judgments regarding the generalizability of the experimental results. Finally, since much of the previous research focused on either college students or psychiatric inpatients, the results of this study could easily be compared with previous ones.

The situations, meanwhile, were comprised of other "people" representing various interpersonal styles. Unfortunately, since interpersonal style always occurs within a social context, additional situational cues could neither be eliminated nor ignored. Differences in interpersonal style were accordingly enhanced while other situational factors were held constant. These factors included the number, roles, status, gender, age, and familiarity of the persons involved. Also included were the duration and content of each interaction, as well as the setting in which it occurred. The situations were thus limited to dyadic interactions between equal-status male acquaintances. The social setting was a group picnic which would be followed by a softball game. The mode of interaction consisted of a short conversation with each stimulus figure.

The presentation of the "situations," however, posed a major methodological problem. Despite the careful control of extraneous situational factors, the participants needed to distinguish between different figures, especially since each participant encountered each figure. Stimulus complexity, allowing different individuals to focus on different aspects of each figure, was also essential. In addition, a methodology which permitted unconstrained and spontaneous responses--as in real-life interactions--would greatly enhance the scientific contributions of the study.

Ideally, the participants would have interacted with live models in a real-world setting. However, constructing and replicating realistic

scenarios--while simultaneously controlling every aspect of each model's physical appearance and behavior--was well beyond the resources at hand. At the other extreme were written vignettes with participants supplying written responses. This solution would have offered maximum control, but at the expense of stimulus complexity and ambiguity, as well as response spontaneity. In addition, written stimuli and responses often do not permit the reliable interpretation of interpersonal style.

The problem of stimulus figure presentation was resolved by a decision to use audio tapes, both to present the stimulus figures and to record the participants' responses. This system permitted the controlled presentation and recording of vocal inflections, which are often essential in the interpretation of interpersonal behavior (Duke & Nowicki, 1982; Kiesler, 1982b). Stimulus ambiguity was still partially maintained, since the participants were left to imagine the other's physical appearance and gestures. Audio tapes also allowed the participants to respond immediately, freely, and spontaneously, as if they were in live interactions.

A conversational format, as opposed to responding to only one statement from each figure, could also reduce error variance by facilitating more consistent perceptions, arousing more affect, and providing more stable response scores. Although one statement may appear stylistically ambiguous, an uninterrupted chain of twelve such statements is considerably less so. Confronting the participants with a rigid, intense style that continued statement after statement was further expected to arouse increasingly intense feelings. Presumably, these feelings would find expression in the participants' replies, rendering them less ambiguous and more accessible to accurate coding. The conversational format also prevented the participants from limiting their responses to socially

desirable platitudes, since it is rather difficult to base an entire conversation on them. Finally, by rating each of the participant's twelve replies and averaging them for each figure, one obtains mean scores which are considerably more stable and less influenced by random fluctuations than the individual response scores themselves (Epstein, 1977, 1979, 1980; Mischel, 1979; Nunnally, 1967). Mean scores also avoided the problems which could arise if some of a participant's responses proved to be unscorable.

Differentiation between the figures was encouraged by assigning them various names and by using different actors to represent them. All participants encountered all of the figures, but the order of the figures was random and varied from participant to participant.

Thus, each participant spoke with the stimulus tapes while his own verbal replies were recorded on a second tape recorder. Following each conversation, he was instructed to indicate his personal impression of the figure on a series of adjective rating scales. The participant's replies were then submitted to trained raters who coded them for their expressed interpersonal styles. The adjective rating scales, meanwhile, were converted into measures of interpersonal perception, perceptual accuracy, and relationship anticipations.

Participants

College students. The college student population consisted of male introductory psychology students attending the University of Cincinnati during the winter quarter of 1981. Following the approval of the departmental Human Subjects Research Review Committee and the Subject Pool Chairman, the students were recruited through the use of standardized

sign-up sheets for an experiment titled "Personal Impressions." These sheets indicated the study was for males only and that each student would receive two hours of research credit for his participation. No other information about the procedures was given at that time. Fifty-eight persons signed up for the experiment; of these, 44 attended and completed their experimental sessions.

Psychiatric inpatients. The psychiatric inpatients were recruited from the Veterans Administration Medical Center in Cincinnati, Ohio. This was a 415-bed general hospital affiliated with the University of Cincinnati Medical School. Its primary function was to serve veterans with service-connected disabilities. However, inpatient care was available to other veterans who required hospitalization and who could not otherwise afford to pay for it.

The hospital had two psychiatry wards housing a total of 40 men. (The few female veteran psychiatric inpatients were always transferred to another hospital.) Both wards were unlocked and patients frequently returned home on pass during the course of their hospital stay. In addition, there were separate inpatient units for drug addicts and alcoholics, who were generally not housed on psychiatry.

Before collecting the data, the research proposal was reviewed and approved by the hospital Chief of Psychology Service, the hospital Psychology Research Committee, the hospital Research and Development Committee, and the University of Cincinnati Medical Center Committee on Human Research. It was then discussed with the psychologist affiliated with the psychiatric inpatient units, who arranged for the investigator to present the project to the nursing staffs of each ward. This was done in an effort to fully inform the staff about the study and to enlist their

cooperation. They were additionally instructed not to divulge the hypotheses of the study to the patients and to refer all questions from the patients to the investigator.

The research pool consisted of all psychiatric inpatients who were on the wards between July 29, 1981 and September 8, 1981; as well as between October 15 and November 18 of the same year. Demographic data was maintained on all psychiatric inpatients during this period. However, the study was restricted to voluntary patients who were capable of comprehending the experimental task, completing the questionnaires, and conducting reasonably coherent conversations. Consequently, patients who were illiterate, who were suffering primarily from organic brain dysfunction, or who had other major visual or auditory incapacities were avoided. Floridly psychotic persons were not scheduled until the most acute symptoms of their psychosis had subsided. Involuntary patients and those who were restricted to the ward were also avoided, due to ethical concerns about their ability to give informed consent, and the legal complications which could arise if they escaped while being escorted by the investigator. Finally, no patient could participate until the investigator had obtained the permission of his attending physician.

In an effort to enhance the cooperation of the inpatients, many of whom were quite paranoid, the investigator attempted to become personally acquainted with each of them before recruiting them for the study. In addition, the patients were not approached for the study until sometime after their first several days on the ward.

Stimulus Tapes

Each audio tape, which featured one stimulus figure, presented one

side of a conversation between two people. The participants were instructed to imagine themselves at a group picnic where they were conversing with the figure on the tape. The figure's responses were each followed by a pause, during which the participants uttered their replies. This was subsequently followed by figure's next statement.

A group picnic followed by a softball game was chosen as an experimental scene which would be familiar to virtually all participants. It was also a scene in which the participants could realistically encounter a variety of different people who were nevertheless relatively equal in age, status, familiarity, and current social roles. A universal and familiar scene, such as a picnic, was further expected to elicit more realistic responses from these participants, since it would be easy for them to imagine how they would actually respond in real life.

The scripts for the tapes were written by the current author. The first tape, a practice tape, presented a woman who was designed to be moderately friendly. The remaining eight stimulus figures were men, and were intended to represent an extreme (intense) version of the midpoint of each of Leary's (1957) octants. This resulted in two figures for each of the four quadrant styles of hostile dominance, hostile submission, friendly dominance, and friendly submission.

Other extraneous situational factors were controlled as much as possible. To begin with, the content of the conversation was similar for each figure and the amount of time devoted to each topic was approximately equal from tape to tape. Much of the conversation, however, was purposely focused on the participant in an effort to enhance his affective involvement with the figure. Thus, the conversation topics included the participant's current job status and his efforts at securing a new

one, the beer he provided, and his reasons for arriving late. Also included were remarks about fixing the hamburgers, the people at the picnic, and the upcoming game. On a more personal level, these conversations dealt with the participant's ability as a pitcher, his current psychological state, and his personal relationship with the stimulus figure. In addition, each conversation culminated in a statement clearly demonstrating the figure's basic interpersonal strategy. The scripts for the tapes, along with the experimental instructions and questionnaires, are provided in Appendix A.

But the setting and the content of the interactions were not the only extraneous situational variables to be controlled. As shown in Table 1, each figure (aside from the practice tape) made exactly twelve statements and uttered approximately the same number of words. This was done in an effort to control the duration of each conversation and the participant's familiarity with each figure. The mean number of words per statement ranged from 15.83 for friendly submissive tapes to 15.88 for hostile submissive ones.

The figures' relative social statuses, ages, and roles vis-à-vis the participants were equalized through instructions. The participants were told to imagine these people as peers approximately the same age as they were, and as fellow members of their softball team.

The investigator's friends and acquaintances generously donated their time as actors for the stimulus tapes. Each was recorded in a quiet location, with coaching provided by the current author. Each actor read the designated script at least six times while being taped. The best performance of each statement was then recopied onto the stimulus tape with a four-second interval between statements. Background noise was

Table 1
The Stimulus Tapes: Number of Words per Statement

Statement	Stimulus tape								
	1	2	3	4	5	6	7	8	0
1.	9	12	13	11	13	14	11	12	4
2.	17	18	16	14	17	10	15	14	12
3.	15	20	17	16	23	18	13	17	11
4.	14	9	11	13	13	17	20	14	10
5.	10	6	14	12	10	15	18	13	8
6.	10	20	19	17	20	20	14	13	6
7.	13	20	10	20	12	19	17	10	11
8.	23	19	18	14	22	8	16	21	8
9.	18	15	12	13	10	13	21	20	8
10.	15	20	16	24	11	24	18	18	
11.	18	18	10	20	9	23	7	17	
12.	24	17	25	25	19	21	18	23	
Total	186	194	181	199	179	202	188	192	78
Mean	15.50	16.17	15.08	16.58	14.92	16.83	15.67	16.00	8.67 ^e
Quadrant mean	15.84 ^a		15.83 ^b		15.88 ^c		15.84 ^d		

^aFriendly dominant.

^bFriendly submissive.

^cHostile submissive.

^dHostile dominant.

^ePractice tape.

minimal.

The tapes were then submitted to eight experienced judges, who estimated each figure's age and classified the portrayed interpersonal styles. The procedures and results of these ratings are discussed in Chapter 7.

Response Questionnaires

In addition to the presentation of the stimulus figures, the coding of the participant's perceptions of these figures constituted another methodological problem. Each figure needed to be rated immediately after its exposure in order to avoid confusion and problems with faulty memories. But the perceptual measures also needed to be short and unobtrusive to avoid undue interference with the remainder of the experimental task. Interpersonal check lists, such as the ones developed by LaForge and Suczek (1955) or Wiggins (1979), were judged to be too long for the current purposes. Instead, a decision was made to use eight bipolar semantic differentials, with four scales referring to affiliation and four to power.

Although the adjectives for these scales could have been selected from either of these interpersonal check lists, the current author decided against this. Adjectives on the Interpersonal Check List (LaForge & Suczek, 1955) do not represent bipolar scales, making it difficult to select eight appropriate adjectives along with their polar opposites. The sixteen subscales of Wiggins's check list do represent eight bipolar pairs of scales, including the two dimensions being investigated here. But the adjectives themselves do not represent bipolar scales. In addition, Wiggins (1979) failed to provide data on the meaningfulness of his adjectives. This data is important because many of his adjectives, such

as "unthorough," "unbold," or "un-self-conscious," appear artificial and contrived. Furthermore, the investigator anticipated working with many participants who had not had much education. This made it even more important to use words which were easily understood.

Anderson (1968), fortunately, collected and published data on the meaningfulness of various trait adjectives. Beginning with Allport and Odbert's 1936 list of 18,000 traits, he compiled a list of 3500 words which were thought to be relevant to impression formation research. He then eliminated words referring to extreme traits, temporary states, physical appearance, strongly sex-linked attributes, and "unsuitable" words, resulting in a list of 2200 adjectives. These words were given to 20 college students, who indicated which words were not meaningful to them and rated the rest according to their appropriateness for describing college students. Anderson then eliminated the words which were not meaningful to at least 18 students. The 555 most appropriate words were then submitted to 50 college students, 25 of each sex. They rated each word on a scale from 0 to 4, depending upon how well they understood each word as a personality trait description. In doing so, they were encouraged to use each number of the scale an equal number of times.

Only words in Anderson's (1968) list were considered for the current study. An effort was made to select words which represented the dimensions under investigation, which were equally high in meaningfulness, and which could appropriately be used as anchors for bipolar semantic differentials. The scale anchors, along with their corresponding average ratings on meaningfulness (Anderson, 1968), are presented in Table 2.

Following their interaction with each stimulus figure, the participants turned to the corresponding page in their questionnaire (Appendix A).

Table 2
Meaningfulness Ratings for the Bipolar
Semantic Differentials

Adjective	Meaningfulness	Adjective	Meaningfulness
Affiliative dimension			
Hostility		Friendliness	
Unfriendly	3.86	Friendly	3.80
Angry	3.74	Cheerful	3.72
Unappreciative	3.72	Appreciative	3.64
Rude	3.76	Thoughtful	3.76
Power dimension			
Submission		Dominance	
Timid	3.80	Domineering	3.82
Incompetent	3.64	Competent	3.74
Dependent	3.60	Independent	3.74
Insecure	3.70	Self-Confident	3.76

Note. Each horizontal row shows the anchor points for one bipolar rating scale. Meaningfulness ratings were based on a scale of 0 to 4 with higher numbers indicating greater meaningfulness. Adjectives and ratings were taken from "Likableness Ratings of 555 Personality-Trait Words" by N. H. Anderson, Journal of Personality and Social Psychology, 1968, 9, 272-279.

The question "What is your personal impression of _____?" was followed by the bipolar scales in a format similar to the one below:

Very Unfriendly _____ Very Friendly

Personal impressions were indicated by marking the appropriate space. The words unfriendly, angry, appreciative, thoughtful, timid, incompetent, independent, and self-confident always appeared on the left side of the page. The remaining words always appeared on the right side of the page, but the order of the scales was different for different figures. They were presented in a counterbalanced random order, subject to the constraint that no more than two scales from the same dimension could be presented consecutively.

The final question on each figure was designed to assess the participant's anticipations regarding future interactions with that figure. The question "Suppose you and _____ continued to see and interact with one another. How well do you think you would get along?" was followed by a bipolar scale, similar in format to the others, ranging from "extremely poorly" to "extremely well."

Informed Consent

Every person completed and signed an informed consent form prior to his participation in the study. Conflicting institutional requirements meant the content of the forms were not identical for patients and students, but the forms were as consistent as possible in both their physical appearance and the information they contained. Explanations of the purpose, procedures, risks, and the right to withdraw were identical for all participants. They were told the purpose of the study was to

"better understand how different people affect the behavior of others." The mental and physical risks were both described as being no greater than those of everyday living. In addition, all participants knew they would be talking to tapes and that their own responses would be recorded.

The college students read and signed the informed consent forms at the beginning of their experimental sessions. But the patients generally completed theirs on the ward when they were recruited for participation in the study. This was done because the medical center required a witness to be present when the patients signed the forms. In addition, the institution required the patients to sign a government document indicating they knew they were participating in research. It further specified their legal rights and the possible applications of the information obtained, although most of these additional details were in no way applicable to the procedures of this investigation.

All participants were given copies of the forms they signed, which are also available in Appendix A. Copies of the patients' consent forms were also placed in their medical charts, but information about their performance was kept strictly confidential. It was not noted in the chart, nor was it shared with the attending physicians or nursing staff.

Experimental Setting and Equipment

Sessions involving college students were scheduled in the research rooms of the Psychology Department at the University of Cincinnati. Those involving patients were located in a small research suite in the hospital.

In each case, the research area consisted of two rooms with a door and one-way mirror between them. The rooms were bare except for some

tables, desk chairs, and curtains which covered most of the one-way mirror. There were no other windows and the ambient noise level was about the same at both locations. It consisted primarily of overhead fans and fluorescent lights.

The room nearest the hallway was reserved for the participant, who sat at a table with the mirror beside him. The other room, the control room, was occupied by the experimenter. An intercom system was used for communication, and in addition, the experimenter could observe the participant through the one-way window.

The experimental equipment consisted of two audio cassette tape recorders, a microphone, two small speakers, and an "electric sponge." Both recorders were located in the experimenter's room. One was used to present the stimulus figures, which the participant heard through a loud-speaker placed on his table. The other recorded the experimental session. It was connected to a low-volume speaker in the control room, allowing the experimenter to monitor the recording at all times.

The "electric sponge," designed by the investigator, was basically a block of foam rubber covered with cloth and was placed on the participant's table. A red indicator light was built into the foam, while a microphone--the one used to record the session--was attached to the top with velcro tabs. The light indicated when the figure was talking and was controlled, along with the tape recorder which presented the figures, by a switch in the control room. They were switched on for the duration of each stimulus statement and then switched off for the duration of the participant's reply. This allowed him to respond at his own pace with as much time as he required.

By indicating when the figure was still talking, the red light in

the electric sponge restrained the participants from voicing their comments on top of those of the figures'. In addition, the foam rubber protected the microphone against vibrations and resulted in high-quality recordings. Finally, since the light and microphone were placed side-by-side, the participants were forced to face the microphone at all times.

Experimental Procedures

The investigator served as the experimenter for all participants, who were first instructed to complete the demographic questions on the front page of the questionnaire (Appendix A). This was followed by an explanation of the microphone, indicator light, and loudspeaker; instructions on completing the adjective rating scales; and finally, the preliminary instructions supplied in Appendix A.

In these instructions, the participant was assured there were no right or wrong answers and that his responses would be kept confidential. He was then asked to imagine he was attending a group picnic which would be followed by a softball game. Some details were provided, including the fact that the participant was bringing some beer to share, arriving later than he planned, and currently looking for a new job. He was told he would be talking with eight different guys. He was asked to assume these men were about the same age he was, that they were acquaintances but not close friends, and that they were members of his softball team. He was further instructed to respond as naturally as he could, but to use complete sentences.

The participant was then asked a series of questions in order to facilitate his imagination and to prepare him for his conversations later on. Included were inquiries about the beer he was bringing, why he was

late, what happened to him in his old job, and how he felt about his ability as a pitcher. The participant gave verbal responses to each of these questions, either by inventing the details as he went along, or by answering on the basis of previous experiences.

The participant was then cautioned that since he was talking to tapes, their responses might not follow directly from his own and that he should not worry about this when it happens. He was also told that prior to talking with the other tapes, he would be talking with a short practice tape. The person on this tape would be a woman, and he would receive some "very brief feedback" at the end of that tape. The experimenter then answered any remaining questions, went into the control room, and closed the door.

From the control room, the experimenter introduced the figure on the practice tape as "Susan." The participant listened and responded to each of her statements in turn. When the conversation ended, all participants were honestly informed they were "doing a really good job." A few were additionally cautioned to "try and respond with complete sentences," or to "remember to keep your eye on the light so that you don't interrupt the other person." The participant then completed the semantic differentials on Susan and the next figure was introduced.

The same general format was used throughout the remainder of the study, except no further feedback was given about the participant's responses. Each figure was introduced by name, but otherwise the experimenter conversed as little as possible and avoided making any remarks about the figures. On the few occasions when a participant failed to respond to a statement, the experimenter asked him to respond. This request was seldom necessary and was not repeated more than three times

with any given participant. If the participant stated he would not ordinarily make a verbal response, he was allowed to specify what he would do.

The figures were presented in a random counterbalanced order, subject to the constraint that a second tape from a given quadrant could not be presented until the participant had encountered at least one tape from each of the remaining quadrants. Each figure was rated, immediately after it was presented, on a separate page of the questionnaire. The entire procedure, including the preliminary instructions, took about an hour.

When the participant was finished, the experimenter emerged from the control room and answered any remaining questions. The college students were also given a detailed explanation of the design of the study, the theory behind it, and the hypotheses being tested. Since they were taking psychology, it was assumed they had some interest in the study and that their participation should be a learning experience. All students promised not to share the information with other potential participants. Since they came from a number of very large classes, the investigator doubted the information traveled through the subject pool very quickly or extensively. Furthermore, the study did not depend upon deception and there was only one instance in which a student leaving the study encountered one coming in. The experimenter overheard most of the resulting conversation and vital information was not exchanged.

Although the investigator would have liked to give each of the patients a thorough explanation as well, it was felt this could not be done without compromising the remainder of the study. Contact between the patients was extensive, especially since the wards provided little privacy, therapy was done in groups, and patients typically stayed several weeks.

Consequently, it was felt that information about the study could be divulged too easily, either through peer pressure, hostility, or accidental slips. All participants, however, both patients and students, were given the option of receiving written information about the final results.

CHAPTER 7

THE STIMULUS TAPES: PRELIMINARY INVESTIGATION

Introduction

In addition to the main study, a preliminary study was conducted for several reasons. First, the validity of the main study depended upon an accurate classification of the stimulus styles. It was thus necessary to determine whether each tape actually portrayed the quadrant style it was intended to. Second, error variance could be drastically reduced by assigning weights to each stimulus tape, depending upon its relative position with respect to the affiliative and power dimensions. This was done by locating each figure, as precisely as possible, within a Cartesian coordinate system. Third, a potentially confounding variable, namely the perceived ages of the figures, was examined more closely. It was concluded that this variable was reasonably well controlled and would not constitute a major alternative explanation of the experimental results.

The procedures of this study consisted of presenting the stimulus tapes to a number of "experts" who reported on their interpersonal perceptions. These reports were then used to derive the actual style portrayed by each tape, the Cartesian coordinates of that style, and the perceived age of the figure.

Since the theory being explored predicted idiosyncratic perceptual biases in all people, including experts, these procedures were obviously paradoxical. But the goal of the current project, to further understand

these biases, could not be achieved without measuring the participant's perceptions against a criterion. And the criterion could only be developed by people.

Efforts could be made--and were made--to choose experts and implement procedures which would minimize the overall biases as much as possible. First, the experts consisted of people who were trained in clinical psychology; they were thus accustomed to examining, testing, and refining their perceptions of other people. Second, they were well acquainted with the theory being tested here and had participated in group discussions focused on the behaviors and attitudes associated with each interpersonal style. Third, the styles were classified into only four broadly described categories, as opposed to a taxonomy of many narrowly defined designations. Fourth, perceptual accuracy and interrater reliability were further enhanced by the fact that the tapes portrayed stylistically intense behaviors rather than ambiguous ones. Fifth, immediately prior to hearing the tapes, the experts read detailed descriptions of the quadrant styles. They were also allowed to refer back to these descriptions during the course of their ratings. Finally, a number of experts, including both males and females, were employed in an effort to attenuate the effects of any strong idiosyncratic biases in perception.

Experts

The experts were four Ph.D. psychologists and four psychology interns at the Veterans Administration Medical Center in Cincinnati, Ohio. They were evenly divided between males and females, and five had prior training experiences with Carson's (1969, 1975, 1979, 1982) model of interpersonal behavior. In addition, all judges had recently completed a six-week

seminar on interpersonal psychotherapy. This seminar met for 1½ hours per week and consisted of integrating Carson's model of interpersonal behavior with Cashdan's (1973, 1982) stage model of psychotherapy. Although the experts were all personally acquainted with the actors of two of the tapes (Tapes 2 and 8), none were involved in the construction of the tapes and none had seen the scripts.

Method

Ratings were collected from each judge individually. Before listening to the tapes, they read the descriptions of dominance, submission, hostility, and friendliness given in Kronberg's "Instructions to Raters" (Kronberg, 1975; also here in Appendix B). They also read DeVoge and Beck's descriptions of friendly dominant, friendly submissive, hostile submissive, and hostile dominant interpersonal approaches (1978, pp. 215-216; also repeated here on page 57). The experts then listened to the practice tape, followed by the other tapes in a random order which varied from expert to expert. Following each tape, the judges were asked to classify the figure of the tape as hostile dominant, hostile submissive, friendly dominant, or friendly submissive. They also estimated the figure's age, based on their impression of the tape.

The judges were not informed as to the "accuracy" of their responses. But once they had evaluated all of the tapes, they were requested to give "second opinions" on any tapes for which their first ratings had differed from the intended style of the tape. Obviously, this procedure put some pressure on the experts to agree with the intended styles. However, this aspect was discussed openly with each judge. Furthermore, when their opinions did change, the experts were questioned as to how definite these

changes were.

Results of the Ratings for Interpersonal Style

Table 3 shows the experts' interpersonal style ratings of the tapes. As can be seen from the table, the practice tape was always regarded as friendly dominant. The agreement rate on the other tapes was generally good (87.5% to 100%) except with respect to power on Tape 3 (62.5% agreement), and to a lesser extent, with affiliation on Tape 1 (75% agreement). In general, the judges felt the content of these two tapes matched the intended styles, but the vocal characteristics were difficult to interpret. Thus, Figure 3 was perceived as too self-assured to be definitely submissive, while Figure 1 seemed to be lacking in warmth.

Since the second opinions often differed from the first ones, they were divided into three categories. These categories were (1) "no change;" (2) "equivocal change," meaning there was an inability to reliably classify the tape one way or the other; and (3) "definite change" for when the judge regarded the first rating as a lapse in judgment. The first rating was used in all subsequent analyses except when the judge's opinion had definitely changed. In these cases, the second rating was used instead. Since the opinion changes could be reliably classified as either equivocal or definite, this approach seemed more reasonable than a strictly mathematical treatment of the data.

Obviously, one could argue the acceptance of second opinions spuriously inflated the agreement rates, because they were solicited only when there was disagreement with the intended style, and not for all opinions. Although this was possible, it seemed rather unlikely. Typically, the experts appeared very confident in their first opinions,

Table 3

Experts' Interpersonal Style Ratings of the Stimulus Tapes

Judge	1	2	3	4	5	6	7	8	Intended style	Agreement ^c	Probability ^c	Power agreement ^b	Probability ^c	Total agreement ^b	Probability ^d
Sex	Male	Male	Male	Male	Female	Female	Female	Female							
Training	Ph.D.	Ph.D.	Ph.D.	Intern	Ph.D.	Intern	Intern	Intern							
Experience ^a	+	+		+	+	+									
Tapes: ^e															
0	FD	FD	FD	FD	FD	FD	FD	FD	f	1.00	.0039	1.00	.0039	1.00	.0000
1	FD	HD/HD	FD	FD	FD	FD	FD	HD/FDe	FD	.75	.1445	1.00	.0039	.75	.0042
2	FD	FD	FD	FD	FD	FD	FD	FS/FDe	FD	1.00	.0039	.875	.0351	.875	.0004
3	FD/FSe	FS	FS	FS	FD/FSe	FS	FD/FD	FD/FSe	FS	1.00	.0039	.625 ^f	.3633	.625 ^f	.0273
4	FS	FS	FS	FS	FS	FS	FS	FS	FS	1.00	.0039	1.00	.0039	1.00	.0000
5	HS	HS	HS	FS/HSd	HS	HS	HS	HS	HS	1.00 ^f	.0039	1.00	.0039	1.00 ^f	.0000
6	HS	HS	HS	HS	HS	HS	HS	HS	HS	1.00	.0039	1.00	.0039	1.00	.0000
7	HD	HD	HD	HD	HD	HD	HD	HD	HD	1.00	.0039	1.00	.0039	1.00	.0039
8	HD	HD	HD	HD	HD	HD	HD	HD	HD	1.00	.0039	1.00	.0039	1.00	.0000
Expert's agreement with the intended style ^{b,g}	.875	.875	1.00	1.00 ^f	1.00 ^f	1.00	.875	.625							

Note. The capital letters in the body of Table 3 refer to interpersonal styles. F = friendly, FD = friendly dominant, FS = friendly submissive, HS = hostile submissive, and HD = hostile dominant. Letters before the / indicate the rating on the first hearing. Letters after the / indicate the rating on the second hearing. A second opinion was not solicited unless the first one disagreed with the intended style. The lower case letters in the body of the table refer to the type of opinion change. An e indicates an equivocal change of opinion, where the judge felt the tape could not be reliably classified one way or the other. A d indicates a definite change of opinion, where the judge considered the first rating to be a lapse in judgment.

^aA + indicates additional experience with Carson's interpersonal theory. All judges had attended the same six-week seminar on interpersonal psychotherapy with Carson's interpersonal system. However, some judges had additional experience as well.

^bThese figures are proportions, or percentages/100.

^cThese probabilities are based on the binomial distribution in which there are two possible choices and the probability of success is .50. The figures represent the chances (under the null hypothesis) of obtaining an agreement rate which is greater than or equal to the rate actually obtained.

^dThese probabilities are based on the binomial distribution in which there are four possible choices and the probability of success is .25. The figures represent the chances (under the null hypothesis) of obtaining an agreement rate which is greater than or equal to the rate actually obtained.

^eThe numbers refer to the designated stimulus tapes. 0 refers to the practice tape.

^fWhen the second opinion represented a definite change, it was treated as the primary opinion in all subsequent analyses.

^gThese figures do not include ratings on the practice tape (0).

which would make them unlikely to change. Furthermore, the second rating replaced the first one in only two instances.

As can be seen in Table 3, the binomial distribution was used to calculate the probabilities of obtaining, under the null hypothesis, agreement rates equal to or better than the ones actually obtained. The probabilities were calculated for each dimension separately (a dichotomous system), as well as for both dimensions combined (a four category system). When the power dimension was examined separately, seven of the eight agreement frequencies were statistically significant at the .04 level or better. This was true for the affiliative dimension as well. When both dimensions were considered simultaneously, there was 100 percent agreement on the practice tape and five other tapes. In addition, the agreement rate for all tapes was statistically significant at the .03 level or better.

The Implications of Expert Disagreements with the Intended Styles

Although the expert agreement rates were generally very good, there were some noted problems, particularly with respect to the power dimension on Tape 3. Basically, disagreements among experts indicated the figure was ambiguous with respect to the given dimension; that, for example, it could be interpreted as being either dominant or submissive. This generally would not happen except when the style was actually located near the center of the scale.

Assuming this was the case, what implications did it have for testing the hypotheses? For the first hypothesis, ambiguity was considered to be an advantage. It would increase the variability in people's perceptions,

thus increasing the range of scores the correlation coefficients would be based on. But for the remaining hypotheses, ambiguity would probably reduce the magnitude of the treatment effects by increasing error variance. Fortunately, there were four replications within each category (friendly, hostile, dominant, or submissive), with 100 percent agreement for three of the replications. Consequently, this reduction was not expected to be a major problem. However, since it was already known which figures would be regarded as ambiguous, a statistical means of controlling these effects seemed advantageous. This control could easily be achieved by "weighing" some of the participants' responses more heavily than others. The difficulty came in determining the weights.

Determination of the Ideal Weights

It should be noted that by now, a transition was made from dichotomous dimensions to continuous ones. Furthermore, as noted in Chapter 2, the affiliative and power dimensions were believed to be orthogonal. Consequently, each figure was located within a two-dimensional Cartesian coordinate system in order to determine its most appropriate weights. The vertical coordinates were then used as weights for the power dimension while the horizontal coordinates became weights for the affiliative dimension. Deriving such a system did pose some problems, however, because the experts' data was categorical, while a Cartesian system is based on continuous numerical scales.

This problem was approached by reviewing the procedures involved in making the tapes. As one might recall, the figures of the tapes were designed to represent the midpoint of each of Leary's (1957) octants or interpersonal styles. The Leary system, meanwhile, readily lent itself

to being plotted on a two-dimensional plane.

As shown in Figure 5, this plane was defined by two perpendicular axes, which intersected at a point $(0, 0)$. The horizontal axis, representing the affiliative dimension, extended from hostility on the left to increasing friendliness on the right. The vertical axis, symbolizing the power dimension, ranged from submission at the bottom to dominance at the top. The center of the plane $(0, 0)$ corresponded to the center of a circle with a radius of 1.00. The circle was further divided into the eight octants comprising the Leary (1957) interpersonal system. Each octant occupied 45 degrees of the circular arc, but the octants, as in Leary's system (Figure 1), were shifted 12 degrees counterclockwise from the coordinate axes. This meant the coordinate axes actually ran through the octants rather than between them.

Since the portrayed interpersonal styles were all intended to be equal in intensity, the ideal locations were all placed on the edge of the circle, with each location corresponding to the center of an octant. They are indicated on Figure 5 with the letter I, while the subscripts refer to the tape numbers.

It was now possible to imagine an angle whose vertex was $(0, 0)$, or the center of the circle. One side of this angle was defined by the positive side of the abscissa (the friendly side of the affiliative dimension), and the other by a vector running from the origin through a given point I_j on the edge of the circle. The cosine of this angle represented the affiliation coordinate, or the location of I_j along the affiliative dimension. Likewise, the sine of this angle became the corresponding power coordinate. These figures, referred to as ideal weights or coordinates, reflected the intensity of a given style with respect to the

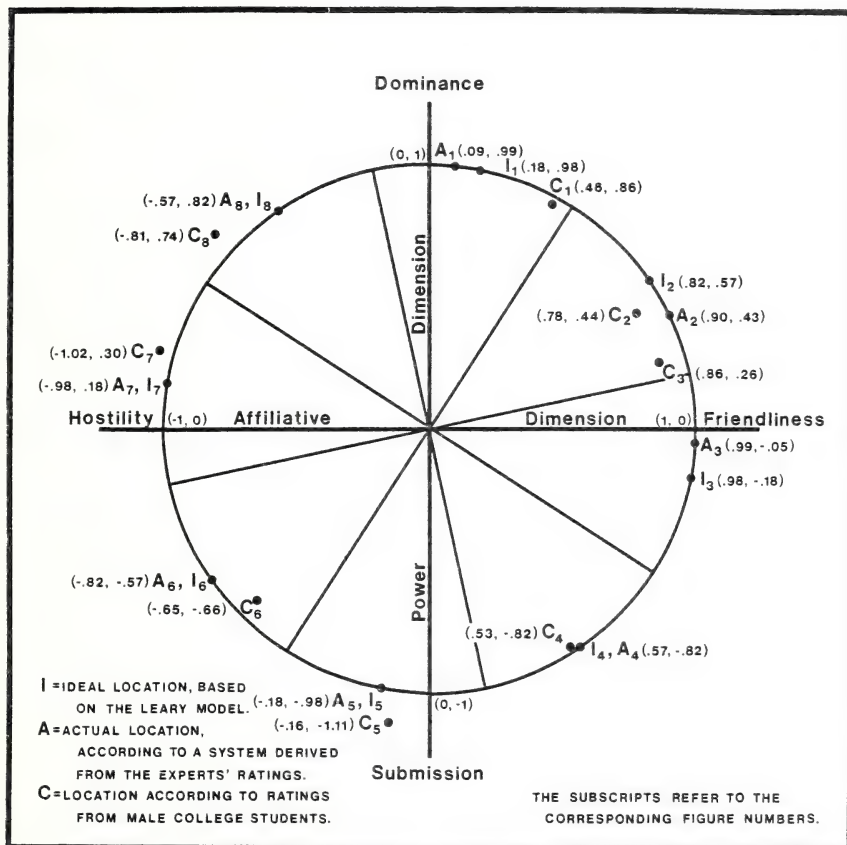


Figure 5. Graphic representation of the figures' interpersonal styles.

underlying dimensions.

Determination of the Actual Weights

The ideal locations and the rates of agreement between experts were used to derive the actual location of each figure's interpersonal style. Although somewhat arbitrary, this method was nevertheless systematic, as well as effective, in transforming the experts' quadrant ratings into a continuous numerical system. It was based on the following conceptual assumptions, which applied to each dimension separately:

1. First, it was assumed that when 100 percent of the experts assigned the tape to the side of the dimension which contained the ideal location, then the corresponding actual coordinate was identical to (or slightly more intense than) the ideal one.
 2. Second, if none of the experts assigned the tape to the side of the dimension which contained the ideal location, then the corresponding actual coordinate was identical to (or slightly more intense than) the ideal coordinate multiplied by -1.00.
 3. Third, when the judges were evenly divided as to which side of the dimension the tape should be assigned to, the actual location was assumed to be at the point of maximum ambiguity. For each dimension, the midpoint, or zero, was assumed to be the point of maximum ambiguity.
- In essence then, two subscales were constructed for each tape, one for each dimension. Each subscale (or vector) ranged from the ideal coordinate multiplied by -1.00, where none of the judges agreed with the intended style, to the ideal coordinate itself, where all judges agreed with the intended style. The midpoint of each scale, where the judges were evenly divided, was always zero.

The following mathematical procedures, based on the above assumptions, resulted in the actual coordinates for each dimension:

1. First, the zero point of the subscale, where none of the judges agreed with the intended style, was defined as the ideal coordinate multiplied by -1.00.

2. Second, the total directional length of the subscale was noted to be twice the value of the ideal coordinate. The direction of the subscale (which was essentially a vector) was indicated by the sign of this number, while the total length of the subscale (or the absolute distance between the zero point and the ideal coordinate) was indicated by the absolute value of this number.

3. The actual coordinate was located somewhere along this subscale, depending upon the proportion of experts who agreed with the intended style. This proportion was multiplied by the total directional length of the subscale and the result was added to the zero point. The final result was the actual coordinate, as shown in the equations presented below:

Let: \underline{I}_j = the ideal coordinate with respect to a given dimension,
such that $-1 \leq \underline{I}_j \leq 1$;

\underline{p}_j = the proportion of experts agreeing with the intended
style, such that $0 \leq \underline{p}_j \leq 1$;

\underline{A}_j = the actual coordinate with respect to the given dimension,
such that $-1 \leq \underline{A}_j \leq 1$.

Then the

$$\text{zero point} = (-1.00)(\underline{I}_j), \quad (1)$$

$$\text{total directional length} = (2.00)(\underline{I}_j), \quad (2)$$

and

$$\underline{A}_j = [(2.00)(\underline{I}_j)](\underline{p}_j) + (-1.00)(\underline{I}_j). \quad (3)$$

For example, the ideal affiliation coordinate for Tape 1 was .18 and the proportion of experts who agreed Tape 1 was friendly was .75. Therefore, the

$$\text{zero point} = (-1.00)(.18) = -.18,$$

$$\text{total directional length} = (2.00)(.18) = .36,$$

and the actual affiliation coordinate

$$\underline{A}_1 = (.36)(.75) + (-.18) = .09.$$

Since there was 100% agreement with the ideal styles for five tapes (4, 5, 6, 7, and 8), the actual positions of these styles were identical to the ideal locations. Due to this, the fact that there were no reasonable measures of overall stylistic intensity, and the fact that disagreements on the remaining three tapes were always confined to one dimension, a decision was made to put the "actual" location of all figures on the edge of the circle. Consequently, for the remaining three tapes, the above procedures were used to calculate the actual coordinate for the dimension on which there was disagreement. The actual location was then defined as the intersection between this actual coordinate and the edge of the circle in the corresponding quadrant.

The remaining coordinate could then be derived from the actual location. If the first coordinate to be obtained was the affiliation coordinate, it was also the cosine of the angle formed by the positive

side of the affiliative dimension and the vector running from the origin of the circle to the actual location on the edge of the circle. The remaining power coordinate, the sine of this angle, could thus be determined either through trigonometric tables or the Pythagorean theorem. Likewise, a remaining affiliation coordinate could be derived from a known power coordinate by applying the same principles.

If these subsequent procedures had not been employed to keep the points on the edge of the circle, three of the styles would have been placed slightly inside of the circle. But the differences would have been trivial--there was a mere outward shift of .01 to .08 units--and these on a dimension for which there was already total agreement.

In addition, two of the actual coordinates shown in Figure 5 were calculated as .995 and .998. Rather than round upwards to 1.00, the investigator chose to round downwards to .99. This, as well as the decision to keep all actual locations on the edge of the circle, was done in order to keep the sum of the actual coordinates on each dimension equal to zero. These were trivial changes mathematically, but statistically, as will be seen later in Chapter 11, they greatly facilitated the subsequent data analyses.

Advantages of the Coordinate System

Despite its quasi-empirical origins, the coordinate system did have a number of advantages. First, it provided a graphic way of thinking about both the ideal and actual locations for the portrayed interpersonal styles; it also took advantage of the radex properties inherent in the Leary model (Lyons, Hirschberg, & Wilkinson, 1980). Second, weights which roughly reflected each figure's location along each dimension could easily be

developed. And third, instead of being limited to conceptualizing each dimension in terms of two categories, it was now possible to rank the tapes from the most submissive to the most dominant, and from the most hostile to the most friendly. This permitted more precise tests of the hypotheses.

Validation of the Interpersonal Style Location Coordinates

Obviously, considerable emphasis was placed upon the location coordinates. Although much could be said for such a system, it was nevertheless an arbitrary one in which an attempt was made to convert categorical data to a numerical scale. The validity of such a conversion was not known.

However, ratings were also collected from 44 introductory psychology students, the participants of the main study, at the University of Cincinnati. All the students were males. The ratings were made on seven-point bipolar scales, with four scales for each dimension. Consequently, this data was easily converted to numerical scales in which each semantic differential ranged from -3 to +3. The students' mean for each figure on each dimension is shown in Table 4.

Due to population variations in people's perceptual biases, as well as the use of different rating procedures, one would not expect the students' ratings to match the experts' ratings exactly. A reasonably close fit, however, would lend credence to the coordinate system.

To begin with, the figures were rank-ordered with respect to their coordinates on the affiliative dimension, ranging from the most hostile to the most friendly. The order of the figures was 7, 6, 8, 5, 1, 4, 2, 3. The rank ordering, according to the students' data, was 7, 8, 6,

Table 4
Male College Students' Interpersonal Style
Ratings of the Stimulus Figures

Tape	Affiliation			Power		
	Mean ^a rating	Transformed ^b mean	Ideal ^c value	Mean ^a rating	Transformed ^b mean	Ideal ^c value
1	1.29	.46	.18	1.78	.86	.98
2	2.10	.78	.82	.91	.44	.57
3	2.28	.86	.98	.55	.26	-.18
4	1.48	.53	.57	-1.71	-.82	-.82
5	-.19	-.16	-.18	-2.32	-1.11	-.98
6	-1.39	-.65	-.82	-1.39	-.66	-.57
7	-2.31	-1.02	-.98	.63	.30	.18
8	-1.77	-.81	-.57	1.53	.74	.82

^aThe ratings were based on a scale ranging from -3.00 to +3.00. Higher ratings indicate greater friendliness on the affiliative dimension and greater dominance on the power dimension.

^bTo obtain the transformed means, the eight mean ratings on each dimension were converted to the same mean (0) and standard deviation (.7057) as the corresponding distribution of ideal values.

^cThe "ideal values" are the ideal location coordinates.

5, 1, 4, 2, 3. As can be seen, the only difference was the reversal of Tapes 6 and 8. The arrangement of the figures with respect to their power coordinates, ranging from the most submissive to the most dominant, was 5, 4, 6, 3, 7, 2, 8, 1. The rank ordering based on the students' data was identical.

Since these results were encouraging, the students' means were correlated with the ideal and actual coordinates. For the affiliative dimension, the correlation coefficient was .978 with ideal coordinates and .969 with actual ones. The corresponding coefficients for the power dimension were .965 with ideal coordinates and .979 with actual ones. These coefficients were all significant at beyond the .001 level, despite the use of different population samples and rating procedures.

Finally, the students' means were transformed to the same mean (0) and standard deviation (.7057) as the distribution of ideal coordinates. The transformed coordinates are also portrayed in Table 4. The transformed means were then plotted onto Figure 5 for a graphic comparison with the ideal and actual coordinates. These points were indicated on the figure with the letter C, while the subscripts again referred to the tape numbers. As shown in the figure, the students, who were younger than the experts, rated Figure 3 higher in dominance, Figure 1 higher on friendliness, and Figure 8 more intense in hostility. Such sample deviations were not unexpected, however, and the agreement between the coordinates and the students' ratings was relatively good. Not only were the students' ratings (with one small exception) located in the proper octants, but they were also reasonably equidistant from the origin. They supported the interpersonal style location system, particularly with respect to the rank ordering of the figures on each dimension.

Although a priori comparisons could have been made between the actual coordinates and the mean ratings collected from the psychiatric inpatients, this procedure was avoided. The psychiatric inpatients, for theoretical reasons, were not predicted to be accurate perceivers.

Results of the Estimates of the Figures' Ages

The interpersonal tapes were carefully constructed to control for many nonstylistic variables such as the sex of the figure, his social role vis-à-vis the participant, the content of the conversations, the number of statements made, and the total number of words used. In addition, an attempt was made to match the figures for their perceived ages. The critical variable here, of course, was not the actors' actual ages, but how they sounded while performing their assigned interpersonal roles. The experts were then asked to estimate each figure's age as a way of determining the success or failure of this matching.

Table 5 shows each expert's age ratings for each figure. The means, standard deviations, and medians were also calculated for each figure. Although the estimated ages ranged from 19 to 48, the means for the figures ranged only from 25.50 to 34.13. There were considerable variations in the rating patterns of different judges.

Planned comparisons were used to determine whether there was a significant relationship between portrayed interpersonal style and estimated age. Since Hypothesis 2 was the one which would have been most strongly affected by the confounding of these two variables, the procedures were identical to the ones used to test this hypothesis. A detailed description of these procedures will not be provided here, but interested readers can refer to Chapter 11.

Table 5

Experts' Estimates of the Figures' Ages

Tape	Expert								Mean	Standard deviation	Median
	1	2	3	4	5	6	7	8			
0	24	27	25	30	27	30	25	20	26.00	3.30	26.00
1	29	35	35	32	28	42	29	26	32.00	5.18	30.50
2	29	26	30	26	27	34	25	22	27.36	3.62	26.50
3	26	26	30	26	35	25	28	25	27.63	3.42	26.17
4	26	28	20	28	33	22	25	22	25.50	4.21	25.50
5	25	32	20	24	31	20	30	24	25.72	4.74	24.50
6	22	28	25	28	29	28	25	25	26.25	2.38	26.50
7	27	30	35	34	38	48	28	33	34.13	6.71	33.50
8	19	28	32	30	28	35	27	22	27.63	5.15	28.00
Mean ^a	25.38	29.13	28.38	28.50	31.13	31.75	27.13	24.88			
Standard ^a deviation	3.42	3.09	6.07	3.34	3.91	9.84	1.96	3.64			

^aThese figures do not include ratings on the practice tape (0).

As noted earlier, there were four parts to Hypothesis 2. Sections 2.a and 2.c made predictions about central tendencies, and for these, the analyses were based on the estimated ages themselves. Sections 2.b and 2.d, however, made predictions about the variability in the obtained responses. They were analyzed with the same procedures, except deviation scores were used instead of the actual estimated ages. These deviation scores were calculated by determining the absolute value of the difference between each estimated age and the median of all the estimated ages for the corresponding figure (Table 6). The larger the mean absolute deviation, the greater the variability of the estimated ages associated with that particular figure.

The overall analysis consisted of a one-way repeated-measures design in which the figures were repeated across experts. It determined whether there were any significant differences in the perceived ages of the figures. As shown in Table 7, there were significant differences in the perceived ages of the figures, as well as significant differences between experts. The analysis of the absolute deviation scores indicated no differences in the variability of the ages associated with each figure; although again, some experts varied more than others.

The second phase of the analysis consisted of planned comparisons, in which the age (or absolute deviation score) associated with each figure was multiplied by the corresponding actual location coordinate. It indicated whether the differences in perceived age were significantly correlated with interpersonal style. Two comparisons were done for the affiliative dimension, and two for the power dimension as well. One was based on actual estimated ages, and the other on the absolute deviation scores. None of these comparisons resulted in a significant relationship,

Table 6
 Absolute Deviation Scores for Experts'
 Estimates of the Figures' Ages

Tape	Expert								Mean
	1	2	3	4	5	6	7	8	
0	2.00	1.00	1.00	4.00	1.00	4.00	1.00	6.00	2.50
1	1.50	4.50	4.50	1.50	2.50	11.50	1.50	4.50	4.00
2	2.50	.50	3.50	.50	.50	7.50	1.50	4.50	2.63
3	.17	.17	3.83	.17	8.83	1.17	1.83	1.17	2.17
4	.50	2.50	5.50	2.50	7.50	3.50	.50	3.50	3.25
5	.50	7.50	4.50	.50	6.50	4.50	5.50	.50	3.75
6	4.50	1.50	1.50	1.50	2.50	1.50	1.50	1.50	2.00
7	6.50	3.50	1.50	.50	4.50	14.50	5.50	.50	4.63
8	9.00	0	4.00	2.00	0	7.00	1.00	6.00	3.63
Mean ^a	3.15	2.52	3.60	1.15	4.10	6.40	2.35	2.77	3.26

^aThese figures do not include ratings on the practice tape.

Table 7

Experts' Estimates of the Figures' Ages: Overall
Analysis of Variance Summary Tables

Analysis with estimated ages					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	543.44	7	77.63	4.50	<.001
Experts	338.19	7	48.31	2.80	<.025
Figures X experts	845.31	49	17.25		
Total	1726.94	63			
Analysis with absolute deviation scores					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	47.75	7	6.82	.88	n.s.
Experts	134.02	7	19.15	2.46	<.05
Figures X experts	381.83	49	7.79		
Total	563.60	63			

as shown in Table 8. The comparison r^2 's for the affiliative dimension were .127 for estimated ages and .196 for absolute deviation scores. The power dimension resulted in comparison r^2 's of .368 for estimated ages and .075 for absolute deviation scores.

None of the comparison r^2 's were significant, indicating that although there were significant differences in the perceived ages of the figures, these differences were not associated with the interpersonal styles on either the affiliative or power dimensions. In addition, the figures did not differ in terms of their elicited variability in perceived age, nor was this variability associated with interpersonal style on either dimension.

Despite this, the comparison r^2 for the power dimension was moderately large (.368). The mean estimated age for dominant figures (30.28) was also four years older than the corresponding mean for submissive ones (26.28), although this difference did not quite reach statistical significance ($p < .10$). While the actors playing the dominant figures probably were, on the average, older than those enacting submissive roles, the investigator believed this perceived difference was actually a function of the interpersonal styles themselves. This impression was supported by a number of experts who made comments like the following: "Well, I know Bob is 28, but when he's playing a dominant style like that, he sounds older, he sounds more like 32." This indicates the possible presence of a positive and uncontrollable correlation between perceived age and perceived dominance.

In summary, although there were significant differences between figures on mean estimated ages, as well as salient individual differences between judges, these deviations were not strongly related to interpersonal

Table 8

Planned Comparison Analyses for the Experts'
Estimates of the Figures' Ages

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Affiliative dimension with estimated ages					
Comparison	69.05	1	69.05	3.58	n.s.
Comparison X experts	134.87	7	19.27		
Affiliative dimension with absolute deviation scores					
Comparison	9.35	1	9.35	.89	n.s.
Comparison X experts	73.35	7	10.48		
Power dimension with estimated ages					
Comparison	200.00	1	200.00	3.17	n.s.
Comparison X experts	441.43	7	63.06		
Power dimension with absolute deviation scores					
Comparison	3.56	1	3.56	.21	n.s.
Comparison X experts	121.35	7	17.34		

style. The matching of the figures for their estimated ages appeared reasonably successful, and perceived age was not expected to be a major confounding factor in the principle study.

CHAPTER 8

THE CODING OF INTERPERSONAL BEHAVIOR AND THE ASSESSMENT OF INTERRATER AGREEMENT: A SECOND PRELIMINARY STUDY

Introduction

Audio recordings were made of the conversations between the participants and the stimulus figures. Experienced raters later evaluated the participants' interpersonal behavior with respect to the power and affiliative dimensions. In doing so, the raters were blind as to whether the participant was a patient or a student, as to which figure he was responding to, and as to how the participant responded to the other stimulus figures. Their ratings were made on seven-point bipolar scales, one for each dimension. These ratings were later employed as the measures of interpersonal behavior in all subsequent analyses.

Estimates of interrater agreement, based on the actual scoring methods used in the study, were calculated and found to be acceptable. The level of agreement for the affiliative dimension, however, was consistently higher than that for the power dimension.

Preparation of the Audio Tapes

For the purposes of this study, a response was defined as a participant's reply to a given stimulus statement. A set of data consisted of all twelve responses made by one participant in response to one stimulus figure. Since there were 8 stimulus figures and 77 participants, there

were 616 sets of data.

A master series of audio tapes was prepared after all of the data had been collected. The stimulus statements were carefully eliminated from these tapes, leaving only the participants' replies with a five-second interval following each response. Randomized blocks were used to copy the sets of data onto the master tapes. In doing so, the entire series of 616 sets was divided into three concurrent series of blocks. Each block of 77 sets contained one set from each participant. Each block of 8 sets included one set of responses to each stimulus figure. These figures were covered in a counterbalanced random order; and within each block, the first four figures each came from different quadrants, while the last four also came from different quadrants. Finally, each block of 7 sets contained data from three randomly selected patients and four randomly chosen students.

Since the data was to be rated blindly, care was taken to minimize the cues the raters could have used to ascertain who was responding to whom. First, as noted earlier, the stimulus statements were eliminated. The sets were numbered sequentially as they appeared on the master tapes, thus preventing the use of code numbers to identify the participants or figures. The randomized blocking of all 616 sets and the assignment of different raters to different tapes also made it difficult for the raters to recall the previous responses of individual participants.

The blocking procedures meant the sets from given participants, in response to certain figures, and from patients and students were evenly distributed throughout the tapes. Consequently, other extraneous and uncontrollable factors--such as rater practice effects, fatigue, or rater idiosyncracies--were also prevented from exerting systematic effects

on the experimental hypotheses.

The Raters

The three raters, all males, were advanced graduate students in clinical psychology and were well experienced with the interpersonal model. Two were working on doctoral dissertations within the framework of the Leary interpersonal system. The third, in addition to one of the first two, had received extensive training in the clinical applications of this system.

All three raters knew they were rating the responses of 33 psychiatric inpatients and 44 college students. In addition, all three had served as actors for the stimulus tapes, and one had volunteered as a practice subject. However, their exposure to the tapes was very brief, and all of it occurred well over a year before they were asked to rate the data. Their limited exposure did not enable them to use the nuances of content to identify the figures being responded to.

Rating Procedures

Each response was assigned two ratings, one for affiliation and one for power. These ratings were made on seven-point bipolar scales ranging from -3 to +3. On the affiliative dimension, negative numbers were used to indicate hostility and positive ones for friendliness. On the power dimension, submission was designated by negative integers and dominance with positive ones. The absolute value indicated intensity, and ranged from neutral (0), to low (1), medium (2), and high (3).

Rater Training

The "Instructions to Raters" (in Appendix B) were written by Charles

Kronberg (1975) and modified for use in this study. They included detailed descriptions of dominant, submissive, hostile, and friendly behaviors; instructions for coding the intensity of these responses; illustrative examples; and written items for raters to practice on.

The coders then received additional practice with responses similar to those obtained in the study by working with a practice audio tape. This tape was divided into two sections. For Section 1, the investigator had four male acquaintances respond to the stimulus scripts as if they were actual participants. Sixteen sets, eight from one volunteer and four from each of two others, were then recopied onto the practice tape. These sets were selected as the ones which were most similar to those obtained in the actual study. They also represented a variety of interpersonal styles and included two sets in response to each stimulus figure. The sets alternated between volunteers while the figures appeared in random order. As with the master tapes, the stimulus statements were eliminated and the responses were separated by five-second intervals. Through their practice on Section 1, the raters became acquainted with the taping procedures, the experimental situation, the range of responses which could be expected, and the general content of the interactions.

Section 2 of the practice tape was designed to sensitize the raters to more subtle nuances, especially the nonverbal qualities of the participants' responses. This section consisted of seventeen sets from actual participants responding to the practice stimulus figure. These sets were selected as the most stylistically intense responses to this particular tape. Despite this, Section 2 was more difficult to rate than either Section 1 or the master tapes.

The difficulties arose because the practice tape--which was purposely

designed to be less intense stylistically--elicited more bland and ambiguous responses than any of the others. Rather than inducing affect, this tape provided the participants with a rehearsal of various details of the experimental scene. Thus, for example, they were asked why they were late, what kind of beer they brought, and their reasons for looking for a new job. Typically, the participants responded with very short, objective answers. But differences in affective tone could still be discerned, and these sets were included to provide practice on "difficult" sets as well as "easy" ones.

The first two raters began their training several weeks before the third. Their ratings on the practice tape were used to calculate rough a priori estimates of interrater reliability. In doing so, each coder's ratings for each set were summed. The totals were then used to calculate product-moment correlations for each pair of raters. For the purposes of these estimates, the investigator's ratings were included as the third coder. On the affiliative dimension, the resulting coefficients ranged between .856 and .932 on Section 1 and .523 to .728 on Section 2. The corresponding figures for the power dimension were .522 to .850 on Section 1 and .501 to .737 on Section 2.

It was apparent, both from the figures and from the qualitative aspects of the raters' experiences, that the "Instructions to Raters" were not sufficiently detailed for rating the responses in this study. This was particularly true when the participants failed to comment directly on their relationship with the stimulus figure, or when the manifest content was incongruent with the nonverbal affect.

Hence, the "Additional Instructions to Raters" (included in Appendix C) were written to counteract these problems. This manual listed specific

content-oriented cues, as well as examples, which were associated with each of the four basic categories. It further defined the differences between each of the intensity levels. It also provided for the coding of responses in which the manifest content and affective qualities were incongruent. To avoid biasing the manual toward rating certain participants in certain ways, the investigator did not refer to the actual data while preparing these instructions.

After discussing their ratings with the investigator, the first two raters were provided with the "Additional Instructions to Raters" and were requested to rate Section 1 again. Since the investigator did not feel it would add to their training, and furthermore, did not want to encourage them to become overly familiar with the actual participants, the raters were not requested to repeat their ratings on Section 2. The third rater was given both sets of instructions simultaneously and was instructed to rate the entire practice tape.

The additional instructions clearly enhanced interrater agreement. For the first two coders, the product-moment correlation coefficient for the affiliative dimension increased from .856 to .930. For the power dimension, it increased from .522 to .892. The correlations involving the third rater were somewhat lower, especially since he had not had as much experience with the practice tape, had not yet discussed any of his ratings with the investigator, and was in the position of sometimes rating his own responses. But the figures, .814 and .780 on affiliation, and .748 and .872 on power, were still very respectable. Following this, the third rater discussed his ratings with the investigator and all three coders began working with the actual data.

Statistical Procedures for Assessing Interrater Agreement

As noted by Mitchell (1979) and Moskowitz and Schwarz (1982), a priori estimates are generally not the best estimates of interrater reliability. Typically, the raters are just learning the procedures and they also know their ratings are being assessed. This may influence their ratings in a variety of ways. They may, for example, spend more time with the materials or attempt to perform their ratings more carefully.

Consequently, the interrater reliability coefficients for this study were calculated on the basis of actual data which was part of the study. The raters knew interrater reliability coefficients would be calculated from their ratings, but they did not know which sets they would be based on, nor did they know which sets the other raters had coded.

In actual practice, the interrater reliability coefficients were based on a broad range of responses which were identical for all three coders. They included all responses on the second and last of the six or seven tapes that each coder evaluated. These tapes included 84 sets which were evenly distributed across the figures. There were 48 sets from students and 36 from patients. A total of 55 different participants were represented, with two sets from 21 of them (13 students and 8 patients) and three sets from 4 of them (2 students and 2 patients).

Although researchers have traditionally relied on interobserver agreement percentages or rater reliability correlations, this study, as recommended by Mitchell (1979), used generalizability coefficients instead. This was because interobserver agreement percentages treat agreement as present or absent, rather than allowing for degrees of agreement. Since ratings in this study were based on graduated seven-point scales rather

than dichotomous variables, such a measure would have greatly underestimated the amount of agreement (if all seven categories were used) or it would have been insensitive to differences in the rating of intensity (if the scales were dichotomized).

Interrater reliability correlations, of course, are sensitive to the degree of agreement. But they consider only two types of variation, namely true score variance and error variance. Variability due to raters and other sources can not be differentiated from error variance. This would have created difficulties in the current study, because even though the ratings were based on individual responses, the responses within a given set were not rated independently of the remainder of the set. Consequently, within sets variance, between sets variance, and rater variance would have all been confounded.

Generalizability coefficients, however, remain sensitive to the degree of agreement while being essentially based on an analysis of variance model (Mitchell, 1979). They allow rater variance, as well as other factors, to be calculated separately from the residual variance (Mitchell, 1979; Shrout & Fleiss, 1979). The percentage of variance attributable to each component could also be calculated (Golding, 1975a; Mitchell, 1979).

It should be noted, however, that generalizability coefficients based on data collected during an actual study are typically much lower than interrater reliability coefficients calculated from pretests. Mitchell (1979) believed this was because the other coefficients were "spuriously high estimates of the quality of the data that are collected" (p. 389).

In this study, two sets of coefficients were calculated separately, one for the affiliative dimension and one for power. Since the responses

within sets were not rated independently, and the later data analyses were based on the means for each set, two coefficients were calculated for each dimension. One coefficient measured interrater agreement on responses within sets, while the other measured agreement on sets of data. These generalizability coefficients were obtained from a repeated-measures analysis of variance. The responses were nested within sets, and the sets were repeated across raters (Keppel, 1973, chap. 20). Since only some of the data was used to calculate the coefficients, the responses, sets of responses, and raters were all treated as random variables (Shrout & Fleiss, 1979).

The procedures for calculating the intraclass correlation coefficients were based on the methods outlined by Shrout & Fleiss (1979). They provided the following formula for calculating intraclass correlation coefficients on the basis of a two-way random effects analysis of variance model (p. 423):

$$\text{ICC} = \frac{\text{BMS} - \text{EMS}}{\text{BMS} + (k-1)\text{EMS} + \frac{k(\text{JMS} - \text{EMS})}{n}}, \quad (4)$$

where: ICC = the intraclass correlation coefficient,

BMS = between targets mean square,

JMS = between judges mean square,

EMS = residual mean square,

k = the number of judges,

n = the number of targets.

The significance of this coefficient was then tested with the following F ratio (Shrout & Fleiss, 1979, p. 424):

$$\underline{F} = \frac{\underline{BMS}}{\underline{EMS}}, \quad (5)$$

with $(\underline{n} - 1)$ and $(\underline{k} - 1)(\underline{n} - 1)$ degrees of freedom.

Unfortunately, the intraclass correlation coefficient obtained by this method is biased (Shrout & Fleiss, 1979; Winer, 1971). The bias can be corrected by multiplying the residual mean square by a correction factor consisting of (Winer, 1971, p. 290):

$$\frac{(\underline{n} - 1)(\underline{k} - 1)}{(\underline{n} - 1)(\underline{k} - 1) - 2}, \quad (6)$$

where $(\underline{n} - 1)(\underline{k} - 1)$ represents the degrees of freedom for the residual mean square.

This correction factor was also employed in the computation of the coefficients for the current study.

By applying the above formulas to the variables presented here (Keppel, 1973, chap. 20), the following equations were derived:

$$\underline{MS}_{CXR/S}^* = \left(\underline{MS}_{CXR/S} \right) \left[\frac{\underline{s}(\underline{r} - 1)(\underline{c} - 1)}{\underline{s}(\underline{r} - 1)(\underline{c} - 1) - 2} \right]; \quad (7)$$

$$\underline{ICC}_{R/S} = \frac{\underline{MS}_{R/S} - \underline{MS}_{CXR/S}^*}{\underline{MS}_{R/S} + (\underline{c} - 1)(\underline{MS}_{CXR/S}^*) + \underline{c}(\underline{MS}_C - \underline{MS}_{CXR/S}^*)/\underline{s}r}; \quad (8)$$

$$\underline{F}_{R/S} = \frac{\underline{MS}_{R/S}}{\underline{MS}_{CXR/S}^*}, \quad (9)$$

with $\underline{s}(\underline{r} - 1)$ and $\underline{s}(\underline{r} - 1)(\underline{c} - 1)$ degrees of freedom;

where: $\underline{ICC}_{R/S}$ = intraclass correlation coefficient for responses within sets,

$\underline{F}_{R/S}$ = \underline{F} ratio for responses within sets,

$\frac{MS^*}{CXR/S}$ = corrected residual mean square for coders and responses within sets,

$\frac{MS}{CXR/S}$ = uncorrected residual mean square for coders and responses within sets,

$\frac{MS}{R/S}$ = mean square between responses within sets,

$\frac{MS}{C}$ = mean square between coders,

\underline{c} = number of coders = 3,

\underline{s} = number of sets = 616,

\underline{r} = number of responses within each set = 12.

Similarly:

$$\frac{MS^*_{CXS}}{CXS} = \left(\frac{MS_{CXS}}{CXS} \right) \left[\frac{(\underline{s} - 1)(\underline{c} - 1)}{(\underline{s} - 1)(\underline{c} - 1) - 2} \right] ; \quad (10)$$

$$\frac{ICC_S}{S} = \frac{\frac{MS_S}{S} - \frac{MS^*_{CXS}}{CXS}}{\frac{MS_S}{S} + (\underline{c} - 1) \left(\frac{MS^*_{CXS}}{CXS} \right) + \underline{c} \left(\frac{MS_C}{C} - \frac{MS^*_{CXS}}{CXS} \right) / \underline{s}} ; \quad (11)$$

$$F_S = \frac{\frac{MS_S}{S}}{\frac{MS^*_{CXS}}{CXS}} , \quad (12)$$

with $(\underline{s} - 1)$ and $(\underline{s} - 1)(\underline{c} - 1)$ degrees of freedom;

where: ICC_S = intraclass correlation coefficient for sets of data,

F_S = F ratio for sets of data,

$\frac{MS^*_{CXS}}{CXS}$ = corrected residual mean square for coders and sets of data,

$\frac{MS_{CXS}}{CXS}$ = uncorrected residual mean square for coders and sets of data,

$\frac{MS}{S}$ = mean square between sets of data,

MS_C = mean square between coders,

c = number of coders = 3,

s = number of sets = 616.

These equations were used to calculate the generalizability coefficients for response ratings ($ICC_{R/S}$) and the data set means or interpersonal behavior scores (ICC_S). Separate coefficients were calculated for the affiliative and power dimensions.

Assessment of Interrater Agreement:

Initial Results

The results of the intraclass correlation analyses are presented in Tables 9 and 10. In interpreting these results, it should be remembered that in a random effects model such as this, the intraclass correlation coefficient is a variance proportion, and consequently is not squared to determine the percentage of common variance (Haggard, 1958; Shrout & Fleiss, 1979). This also means that it is the square root of this coefficient, not the coefficient itself, which is most comparable to other correlation coefficients such as the Pearson r .

From Tables 9 and 10, it can be seen that there were significant levels of interrater agreement on both dimensions. For agreement on sets of data, the intraclass correlations were .507 for affiliation and .357 for power. The value of aggregated ratings was also apparent, since the corresponding coefficients for individual responses within the sets were considerably lower. They were .359 for affiliation and .217 for power.

Table 9

Interrater Agreement on the Affiliative Dimension:
Intraclass Correlation Analysis Based on the
Unstandardized Ratings of the
Second and Last Tapes

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	1556.86	83	18.76	7.23	<.001
Resp./sets ^a	1437.22	924	1.56	3.61	<.001
Coders	442.63	2	221.31	85.29	<.001
Sets X coders	430.76	166	2.59	6.02	<.001
Resp./sets X coders ^a	795.94	1848	.43		
Total	4663.42	3023			

Affiliative intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Sets	.507	83, 166	2.63	7.14	<.001
Resp./sets ^a	.359	924, 1848	.43	3.61	<.001

Note. The analyses in this table are based on each coder's actual ratings of the second and last tapes he evaluated. No transformations were made.

^aResp./sets = responses nested within sets.

Table 10

Interrater Agreement on the Power Dimension:
Intraclass Correlation Analysis Based on the
Unstandardized Ratings of the
Second and Last Tapes

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	1892.80	83	22.80	3.73	<.001
Resp./sets ^a	1196.86	924	1.30	2.37	<.001
Coders	647.15	2	323.58	52.94	<.001
Sets X coders	1014.63	166	6.11	11.17	<.001
Resp./sets X coders ^a	1011.56	1848	.55		
Total	5763.00	3023			
Power intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Sets	.357	83, 166	6.19	3.69	<.001
Resp./sets ^a	.217	924, 1848	.55	2.36	<.001

Note. The analyses in this table are based on each coder's actual ratings of the second and last tapes he evaluated. No transformations were made.

^aResp./sets = responses nested within sets.

Data Transformation: Reasons and Procedures

Unfortunately, a closer inspection of Tables 9 and 10 revealed some definite problems. In both analyses, there were highly significant main effects for differences between coders. Thus, even though they were moderately correlated with one another, each coder's ratings were calibrated to individually specific means and variances. These differences were persistent throughout the study and were found in every sample of responses which were examined, including the study as a whole. The problem with these differences was that they greatly increased the error variance associated with the later hypotheses.

These differences could be attributed purely to differences between coders rather than differences between sets, since they were obtained even here, where the sets were identical for all three coders. Consequently, each coder's distribution of ratings was standardized to a mean of 0 and a standard deviation of 1.00. This made the scores obtained from different raters comparable with one another. The resulting z scores were used in all subsequent analyses.

There were, however, a variety of choices as to which mean and standard deviation one could use to transform each coder's ratings. Furthermore, the values which would provide the most accurate indices of agreement on the sets which were identical for all three coders would also result in less accurate estimates of agreement for the entire study. For example, when the ratings were standardized to each coder's mean and standard deviation for the second and last tapes, the affiliative coefficient for sets increased from .507 to .741; for responses within sets, it went from .359 to .449. On the power dimension the intraclass correlation for

sets rose from .357 to .530, and for responses within sets it increased from .217 to .295. (See Appendix D for the corresponding summary tables.) However, since these figures were based on the statistics of a comparatively small sample of data, rather than the entire study, they could easily overestimate the actual agreement in the study as a whole.

Since this preliminary study was concerned with assessing the quality of the data in the principle study, rather than with obtaining the highest possible interrater agreement coefficients, the scoring methods used in the subsequent analyses were identical to those of the overall study. To begin with, it was noted that 84 sets had been evaluated by all three raters. Their ratings on these sets were averaged, resulting in one set of scores for each set of data. The sets for the entire study were then divided into four different groups, one corresponding to each of the three coders, and the remainder containing the sets with averaged ratings. Since the responses within sets did not enter into any of the subsequent analyses, they were averaged to form mean scores for each set. The set means were then used to derive separate means and standard deviations for each of the four groups. Finally, these group means and standard deviations, shown in Table 11, were used to convert the corresponding set means into z scores.

Although the means and standard deviations used to transform each coder's ratings were not derived from identical sets of data for each coder, this method was believed to be justified for a number of reasons. First, since the transformations were based on all of the data evaluated by a particular coder or coders, and only that data, they were based on the most stable and accurate estimates of each coder's rating tendencies which could be obtained. Second, the sets were randomly assigned, with

Table 11
Means and Standard Deviations of the
Set Means in Each Group of Data

Group	\underline{n}^a	Affiliation		Power	
		Mean	Standard deviation	Mean	Standard deviation
Coder 1	166	.037	.521	.590	.579
Coder 2	196	.374	.964	.181	1.202
Coder 3	170	.770	.998	.964	.991
All coders	84	.348	.722	.541	.797
Study average	616	.388	.845	.555	.953

Note. A group consisted of all of the data evaluated by one coder, or by a combination of all three coders. The set means were obtained by averaging the ratings of the twelve responses within each set.

\underline{n}^a refers to the number of sets within each group.

the proportions of students and patients and the proportions of sets from each figure being consistent across all groups of data. It could thus be assumed the sets within each group represented equivalent distributions, especially when one considers the relatively large number of sets in each group. The responses from any given participant, meanwhile, were always distributed across at least two groups.

Finally, suppose that for some unknown reason the randomized blocking procedures failed and the distribution of true scores was not identical for each of the groups of data. This would mean the distributional differences between the groups were in fact due to both true score variance and error variance. Standardizing the scores within each group before combining them into the total distribution to be analyzed would effectively reduce both true score variance and error variance. If these true score differences were considerably larger than the error or coder effects, this would reduce the probability of obtaining statistically significant effects in the subsequent analyses. But if the true score differences were much smaller, transforming the scores would reduce the error variance relatively more than the true score variance. This, of course, would enhance the later chances of obtaining meaningful statistical relationships.

The final conclusion was that the standardizing procedures could not result in spuriously significant effects, although they could mask truly significant differences. Given the results of the initial analyses, however, the potential benefits of these methods seemed to be well worth the relatively small risks involved.

Two other effects of the standardizing procedures should also be noted before moving on. First, since the responses were averaged to form the set means before any transformations occurred, there was no longer

any measure of (or any need to measure) agreement on the responses within sets. Consequently, the remaining analyses were confined to interrater agreement on the set means.

Second, the 84 sets which were used to assess interrater agreement were not used to standardize the ratings of each individual coder, since the ratings on these sets were standardized as a separate group. This means that while the following interrater agreement analyses were based on "standardized" scores, the "standardization" in fact took place on sets which were not even included in these analyses. At best, therefore, the results of these analyses represent fairly conservative estimates of interrater agreement within the study as a whole. The accuracy of these estimates is unknown, and in any case, they do not represent the highest level of agreement which can be derived from these particular sets of data.

Assessment of Interrater Agreement with Transformed Data

Table 12 presents the intraclass correlation analyses of the same 84 sets based on the scoring procedures outlined in the previous section. Transforming the data did enhance the degree of interrater agreement. The figure for the affiliative dimension rose from .507 to .722; for the power dimension, it rose from .357 to .483. As expected, these figures were somewhat lower than the corresponding figures of .741 and .530 which were obtained when each coder's ratings were standardized on the basis of his ratings on these 84 sets alone. Nevertheless, the figures were still relatively similar, indicating the scores on these tapes were fairly typical of the coders' ratings in general. Since these intraclass correlations represented variance proportions (Shrout & Fleiss, 1979), it was

Table 12

Intraclass Correlation Analysis Based on the Transformed
Ratings of the Second and Last Tapes

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	188.90	83	2.28	9.69	<.001
Coders	4.56	2	2.28	9.72	<.001
Sets X coders	39.00	166	.23		
Total	232.47	251			

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	170.62	83	2.06	4.21	<.001
Coders	11.44	2	5.72	11.71	<.001
Sets X coders	81.09	166	.49		
Total	263.15	251			

Intraclass correlations

Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.722	83, 166	.72	9.57	<.001
Power	.483	83, 166	.49	4.16	<.001

concluded that acceptable levels of interrater agreement had been obtained, especially for the affiliative dimension.

The sample of 84 sets was then divided into various subsamples, depending upon which tape the sets came from and whether the participant was a patient or a student. The resulting intraclass correlations are summarized in Table 13, while the corresponding analysis of variance summary tables can be found in Appendix D. The resulting correlation coefficients were all statistically significant at well beyond the .001 level. The coefficients for the affiliative dimension never fell below .677 and ranged as high as .766; those for the power dimension ranged between .431 and .545. Except for the ratings of students on the affiliative dimension, interrater agreement seemed to increase somewhat over the course of the study. This was in contrast to the usual pattern of rater drift, in which interrater agreement tends to drop over time.

It was also significant that all of the coefficients for the affiliative dimension were considerably higher than any of those for the power dimension, a difference which had implications for the later hypotheses. To the extent that raters are in better agreement, one would also expect the corresponding results to be less influenced by error variance and to demonstrate more cohesive and statistically significant effects. Consequently, stronger effects were expected for the affiliative dimension than for the power one.

Finally, the 84 sets were also subdivided according to which figure the participant had responded to, and the results of these analyses can be found in Tables 14 and 15. (The corresponding analysis of variance summary tables are also in Appendix D.) Since generalizability coefficients, as variance proportions, do not indicate the direction of

Table 13

Subsample Intraclass Correlations Based on Transformed
Ratings of the Second and Last Tapes

		Affiliative dimension			Power dimension		
Subsample	<u>n</u> ^a	<u>ICC</u> ^b	Avg. ^c mean	Avg. ^d <u>SD</u>	<u>ICC</u>	Avg. ^c mean	Avg. ^d <u>SD</u>
All participants:							
Second tape	42	.704	-.103	.965	.440	.013	.986
Last tape	42	.740	-.017	.928	.542	.027	.993
Second & last tapes	84	.722	-.060	.950	.483	.019	1.001
Students:							
Second tape	24	.719	-.047	1.009	.431	.116	1.019
Last tape	24	.702	.125	.890	.545	-.001	.972
Second & last tapes	48	.714	.039	.951	.478	.058	1.005
Patients:							
Second tape	18	.677	-.180	.922	.432	-.125	.951
Last tape	18	.766	-.207	.964	.535	.065	1.045
Second & last tapes	36	.723	-.193	.941	.486	-.030	1.009

Note. All intraclass correlation coefficients were significant at well beyond the .001 level. The average means and standard deviations were calculated by averaging the means and standard deviations obtained from each of the three coders. Analysis of variance summary tables and additional data on the coders' means and standard deviations can be found in Appendix D.

^an = number of sets.

^bICC = intraclass correlation coefficient.

^cAverage mean.

^dAverage standard deviation.

Table 14

Affiliative Intraclass and Product-Moment Correlations
of the Transformed Ratings of the
Responses to Each Figure

Figure	n ^a	ICC ^b	Product-moment correlations				Avg. ^c mean	Avg. ^d SD
			Coder 1 versus Coder 2	Coder 1 versus Coder 3	Coder 2 versus Coder 3			
1	10	.539**	.742**	.674*	.590*	.753	.641	
2	11	.572**	.701*	.510	.639*	.380	.691	
3	11	.563**	.867***	.543*	.756***	.456	.624	
4	11	.309*	.525*	.246	.397	.258	.559	
5	10	.643***	.769***	.781***	.731**	-.143	.893	
6	10	.691***	.798***	.633*	.879***	-.684	1.005	
7	10	.390*	.442	.649*	.487	-1.086	.748	
8	11	.574***	.569*	.779***	.801***	-.501	.722	

Note. All significance tests were one-tailed tests. The average means and standard deviations were calculated by averaging the means and standard deviations obtained from each of the three coders. Analysis of variance summary tables and additional data on the coders' means and standard deviations can be found in Appendix D.

^an = number of sets.

^bICC = intraclass correlation coefficient.

^cAverage mean.

^dAverage standard deviation.

*p < .05, one-tailed test.

**p < .01, one-tailed test.

***p < .005, one-tailed test.

Table 15
Power Intraclass and Product-Moment Correlations
of the Transformed Ratings of the
Responses to Each Figure

Figure	n ^a	ICC ^b	Product-moment correlations			Avg. ^c mean	Avg. ^d SD
			Coder 1 versus Coder 2	Coder 1 versus Coder 3	Coder 2 versus Coder 3		
1	10	.215	.477	.107	.302	-.447	.645
2	11	.149	.035	.113	.470	-.525	.821
3	11	.604***	.622*	.583*	.841***	-.108	.961
4	11	.469**	.312	.231	.829***	-.009	.876
5	10	.632***	.780***	.633*	.773***	.313	1.086
6	10	.348*	.013	.503	.783***	.013	1.000
7	10	.330**	.344	.610*	.843***	.788	.904
8	11	.431**	.632*	.320	.604*	.188	.878

Note. All significance tests were one-tailed tests. The average means and standard deviations were calculated by averaging the means and standard deviations obtained from each of the three coders. Analysis of variance summary tables and additional data on the coders' means and standard deviations can be found in Appendix D.

^an = number of sets.

^bICC = intraclass correlation coefficient.

^cAverage mean.

^dAverage standard deviation.

*p < .05, one-tailed test.

**p < .01, one-tailed test.

***p < .005, one-tailed test.

covariation, product-moment coefficients were also calculated for each pair of raters. Each of the underlying product-moment correlations was positive rather than negative, providing even more evidence of interrater agreement.

Despite the small number of sets in each group, the generalizability coefficients for the affiliative dimension were all statistically significant, as were six of the eight coefficients for the power dimension. In general, however, these coefficients were lower than the previous ones, especially for the affiliative dimension. Since the corresponding standard deviations were also considerably smaller, this discrepancy appeared to be due to restricted ranges rather than greater disagreement. Further evidence of rater sensitivity could be seen in the fact that in contrast to previous analyses, where the means were reasonably close to zero, the means in these analyses varied considerably--and systematically--from figure to figure. This fluctuation suggested the presence of strong situational effects in which participants responded differently--and were rated differently--depending upon which figure they encountered. At this point, however, the results were no longer concerned with interrater agreement, but with the principle study itself.

In conclusion, it could be said that reasonable levels of interrater agreement were obtained, especially for the affiliative dimension. It is interesting to note, however, that despite the extensive experience and training of these raters, persistent individual idiosyncrasies in perception remained. Fortunately, these idiosyncrasies were less salient than the consensually validated aspects of the ratings, and it was also possible to use statistical methods to reduce their effects even further.

PART III

RESULTS AND DISCUSSION

CHAPTER 9

SAMPLE DEMOGRAPHICS AND RESPONSES TO THE PRACTICE QUESTIONS

Student Demographics

The students were male undergraduates at the University of Cincinnati during the winter quarter of 1981. All were taking introductory psychology courses and in return for their participation, they received additional credit toward their grades. Of the 58 students who signed up for the experiment, 44 attended and completed their experimental sessions.

For the most part, the students represented a relatively homogeneous sample, at least in comparison to the patients (Table 16). The mean age was 19.43 years, with a range of 18 to 26 years. Almost sixty percent (59.5%) were college freshmen, although one was in the fifth year of a five-year program. All but three were single, all but two were white, and only two had any military experience. Roughly a third (36.4%) were majoring in some form of business or accounting, while an additional quarter (27.3%) had chosen engineering or chemistry. Only two students reported any current medications, both were for acne.

Patient Demographics

The patient population consisted of all psychiatric inpatients in the Cincinnati Veterans Administration Medical Center between July 29, 1981 and September 8, 1981, as well as between October 15 and November 18 of the same year. This included 168 men, of whom 90 were eligible for the

Table 16
Sample Demographics

Category	Students (<u>n</u> = 44)		Patients (<u>n</u> = 33)		Total (<u>n</u> = 77)	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Race:						
White	42	95.5	28	84.8	70	90.9
Black	2	4.5	5	15.2	7	9.1
Marital status:						
Single	41	93.2	5	15.2	46	59.7
Married	3	6.8	5	15.1	8	10.4
Separated	0	0	13	39.4	13	16.9
Divorced	0	0	10	30.3	10	13.0
Current Work Status:						
Disabled	0	0	9	27.3	9	11.7
Unemployed	0	0	17	51.5	17	22.1
Student	34	77.3	1	3.0	35	45.4
Employed	10	22.7	6	18.2	16	20.8
Field of Study:						
General or undecided	7	15.9	16	48.5	23	29.9
Vocational	0	0	3	9.1	3	3.9
Business or accounting	16	36.4	8	24.2	24	31.1
Engineering or chemistry	12	27.3	1	3.0	13	16.9
Social sciences or humanities	1	2.3	3	9.1	4	5.2
Arts	6	13.6	1	3.0	7	9.1
Other	2	4.5	1	3.0	3	3.9

Table 16--Continued

Category	Students (<u>n</u> = 44)		Patients (<u>n</u> = 33)		Total (<u>n</u> = 77)	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Military experience:						
None	42	95.4	0	0	42	54.5
Army	1	2.3	14	42.4	15	19.5
Marines	1	2.3	7	21.2	8	10.4
Navy	0	0	6	18.2	6	7.8
Air Force	0	0	4	12.1	4	5.2
National Guard or Coast Guard	0	0	2	6.1	2	2.6

Category	Students	Patients	Total
Age (in years):			
Mean	19.43	34.39	25.84
Standard deviation	1.62	7.34	8.93
Range	18 - 26	22 - 57	18 - 57
Education (in years or equivalent):			
Mean	13.67	12.82	13.29
Standard deviation	.95	2.23	1.68
Range	13 - 17	8 - 17	8 - 17

study. In order to be eligible, the patients had to be capable of completing the experimental task; they also had to be hospitalized voluntarily and allowed off the ward. Patients with a diagnosis of organic brain syndrome; or who were floridly psychotic, illiterate, or otherwise incapable of reading, writing, or conversing; were thus avoided. The final criterion of eligibility was whether or not the investigator had obtained the permission of the patient's primary physician. Twelve patients were discharged before their physicians could be contacted. The rest were declared ineligible for other reasons.

Of the 90 eligible patients, 59, or roughly two thirds of them, were approached for participation in the study. The remainder typically spent almost all of their free time off the ward, which prevented the investigator from meeting them before they were discharged. About half of the patients who were approached agreed to participate, and all but one completed their experimental sessions. The remaining one, a 64-year-old black male with a diagnosis of acute psychosis, had to be dropped from the study because of his inability to imagine crucial details of the experimental scene. The 33 patients who participated all served as unpaid volunteers.

As can be seen in Table 16, the patients represented a less homogeneous sample than the students. They also differed on every demographic variable for which information had been obtained. The mean age of the participating patients was 34.39 years with a range of 22 to 57. All had completed the eighth grade, but many had dropped out in high school. Despite this, a third (10 patients) did manage to finish high school or pass the G.E.D., while an additional half continued in college or vocational school. Four graduated from college; one had a Master's degree.

In addition, all patients had served in the military--which was a requirement for admission to this hospital.

In contrast to the students, 69.7% of the patients were currently separated or divorced and half of the remainder were married. A third had been married two or three times. In addition, 78.8% of the patients were either disabled or unemployed. Both of these variables, as well as being hospitalized, suggested a higher rate of maladjustment among the patients than among the students.

The hospital kindly allowed the investigator to examine the patients' current and previous medical records, making it possible to compile additional information which was not available for the students. This information could also serve as a rough indicator of the degree of maladjustment among the patients, and is presented in Table 17. The current diagnoses were classified by the attending psychiatrists according to DSM-III (American Psychiatric Association, 1980). The "psychosis" category thus represented those patients who were considered psychotic, but not from schizophrenia, affective disorders, organicity, or toxicity. This category did include schizo-affectives and undifferentiated psychotics. The medications were organized according to the American Hospital Formulary Service (American Society of Hospital Pharmacists, 1981). The remaining variables were not coded unless explicitly stated in the chart. Since people are often inclined not to report negative aspects of themselves unless they have to, there is probably some underreporting in certain areas, particularly with respect to previous arrests or drug abuse.

However, as can be seen in Table 17, roughly a quarter of the patients were schizophrenics while about forty percent had affective disorders. The principle secondary diagnosis, which characterized one

Table 17
Additional Patient Characteristics

Category	Number (<u>n</u> = 33)	Percent
Primary diagnosis:		
Schizophrenia	8	24.2
Psychosis	1	3.0
Affective disorder	13	39.4
Anxiety reaction	3	9.1
Personality disorder	5	15.2
Substance abuse	2	6.1
Observation case	1	3.0
Secondary diagnosis:		
Psychosis	1	3.0
Affective disorder	3	9.1
Anxiety reaction	1	3.0
Personality disorder	2	6.1
Substance abuse	11	33.3
None or other	15	45.5
Primary psychiatric medication:		
Major tranquilizer	12	36.4
Antidepressant	3	9.1
Lithium	3	9.1
Sedative	5	15.1
Other	2	6.1
None	8	24.2

Table 17--Continued

Category	Number (<u>n</u> = 33)	Percent
History of previous psychiatric admissions:		
Two or more previous admissions	22	66.7
One previous admission	6	18.2
No previous admissions	4	12.1
No information available	1	3.0
Service-connected disabilities:		
None	18	54.5
Medical disabilities only	2	6.1
Psychiatric disabilities	13	39.4
Extent of service-connected disabilities:		
100%	6	18.2
60%	1	3.0
50%	3	9.1
30%	2	6.1
10%	2	6.1
Unknown	1	3.0
None	18	54.5
History of:		
Alcohol abuse	17	51.5
Drug abuse	12	36.4
Suicide attempts	10	30.3
Extremely serious medical problems	0	0
Head trauma	5	15.2

Table 17--Continued

Category	Number (<u>n</u> = 33)	Percent
History of (continued):		
Seizures	3	9.1
Electroconvulsive shock therapy	3	9.1
Legal arrests or convictions	8	24.2
Parenthood	20	60.6
Number of times married:		
None	5	15.1
Once	17	51.5
Twice	9	27.3
Three times	2	6.1

Category	Mean	Standard deviation	Range
Current age	34.36	7.34	22 - 57
Age at first psychiatric admission	27.04	8.77	13 - 49
Time since last admission (in months)	10.52	15.49	0 - 60
Length of current admission (in days)	42.42	29.64	8 - 143

third of the patients, was substance abuse, typically alcohol. A third were on major tranquilizers such as Haldol or Thorazine, but a quarter were receiving no medications at all. Two thirds of the patients had a history of two or more previous psychiatric hospital admissions, but the average age at the time of the first admission was 27.04 years. Thus, many of the patients were older than any of the students even before their first hospitalization. Furthermore, for roughly forty percent of the patients, the psychiatric disabilities were believed to be related to their military service. Of these, half were considered totally disabled.

The period of time since the last psychiatric admission varied from roughly a week to five years; the mean was ten to eleven months. The current admission averaged 42 days, but there was considerable variation, 8 to 143 days, with a standard deviation of 30 days.

Over half of the patients had a history of alcohol abuse, over a third had abused drugs, and close to a third had attempted suicide at some point in their lives. A quarter had been arrested and/or convicted--the offenses ranged from public drunkenness to serving a prison term for shooting a girlfriend--and most were alcohol related. Although five patients had a history of head trauma, the accidents generally were not serious and all were believed to be fully recovered. None, in the subjective evaluation of the investigator, were felt to have had any recent or current life-threatening medical problems (except for suicide attempts).

Comparisons Between the Patient Sample and the Total Psychiatric Inpatient Population

Since the investigator had access to all of the medical records, it was possible to compile information on each of the patients who were on

the psychiatry wards during the course of the study. Since this data was quite extensive, it was tabulated for only a few important variables, as shown in Table 18. However, the investigator is unaware of any other major differences between the patient sample and the total population. The two possible exceptions would be variables closely linked to the tabulated ones, and length of stay. Thus, for example, one would expect current medications to be related to current diagnoses. Length of stay may have differed, since patients with extremely short admissions were not likely to participate in the study. The length of admission, however, was not necessarily related to diagnostic severity, since many patients left against medical advice or were quickly transferred to a long-term facility. Consequently, those who stayed for longer periods were frequently the ones who were most capable of developing good interpersonal relationships.

There were 168 different patients on the ward during the course of the study, 33 of whom participated in the study. In general, the total patient population was even more heterogeneous than the participating patients. As can be seen in Table 18, the incidence of organic brain syndrome, schizophrenia, and psychoses were higher for the total population than for the sample population, with a corresponding decrease in the other categories. This had to be expected, since persons who were organic or floridly psychotic were ineligible. There was a higher incidence of serious medical problems as well, but this too was expected, since physically incapacitated persons were also ineligible.

Most of the remaining differences seemed to follow from these primary differences in diagnosis and medical problems. To the extent that these diagnoses were more severe, there was also a corresponding increase in the proportion of patients with a history of two or more previous

Table 18
 Characteristics of the Total Psychiatric
 Inpatient Population

Category	Number (<u>n</u> = 168)	Percent
Race:		
White	129	76.8
Black	36	21.4
Unknown	3	1.8
Current marital status:		
Single	55	32.7
Married	38	22.6
Separated	23	13.7
Divorced	41	24.4
Widowed	9	5.4
Unknown	2	1.2
Current work status:		
Disabled	72	42.9
Unemployed	56	33.3
Student	2	1.2
Employed	21	12.5
Retired	9	5.3
Unknown	8	4.8
Primary diagnosis:		
Organic brain syndrome	8	4.8
Schizophrenia	57	33.9

Table 18--Continued

Category	Number (<u>n</u> = 168)	Percent
Primary diagnosis (continued):		
Psychosis	17	10.1
Affective disorder	60	35.7
Anxiety reaction	7	4.2
Personality disorder	9	5.3
Substance abuse	8	4.8
Adjustment reaction	1	.6
Observation case	1	.6
History of previous psychiatric admissions:		
Two or more previous admissions	127	75.6
One previous admission	19	11.3
No previous admissions	16	9.5
No information available	6	3.6
History of:		
Alcohol abuse	78	46.4
Drug abuse	38	22.6
Suicide attempts	35	20.8
Extremely serious medical problems	27	16.1
Head trauma	21	12.5
Seizures	8	4.8
Electroconvulsive shock therapy	15	8.9
Legal arrests or convictions	31	18.4
Parenthood	86	51.2

Table 18--Continued

Category	Number (<u>n</u> = 168)	Percent
Number of times married:		
None	55	32.7
Once	86	51.2
Twice	20	11.9
Three times	4	2.4
Five times	1	.6
Unknown	2	1.2
Eligibility for the current study:		
Not eligible	78	46.4
Eligible	90	53.6
Approached for participation in the study:		
No	31	18.5 (34.4) ^a
Yes	59	35.1 (65.6) ^a
Participated in the study:		
No	26	15.5 (44.1) ^b
Yes	33	19.6 (55.9) ^b

^aPercentage of those who were eligible for participation in the study.

^bPercentage of those who were approached for participation in the study.

psychiatric admissions. Blacks were underrepresented in the participating sample, but they were also more likely to be diagnosed organic, schizophrenic, or psychotic. In fact, 84.2% of the blacks, in contrast to 41.5% of the whites, received diagnoses in these categories.

To the extent that organic brain syndromes and physical limitations are more characteristic of older populations, the mean age, as well as the variability in the ages, was also considerably greater for the patient population than for the participating sample. Thus, the total population had a mean age of 40.72, with a range of 21 to 99 and a standard deviation of 14.26 years, roughly twice that of the participants. Since older persons are more likely to be retired or widowed, and less likely to have a history of drug abuse, these differences were also found.

In contrast with the total population, the participating patients were also less likely to be considered disabled and more likely to be unemployed. However, the sum of these two categories resulted in percentages which were about equal for both groups, 76.2% for the total patient population and 78.6% for those who participated. Consequently, there could be a tendency for younger, unemployed patients to be given disability ratings as they get older.

There were, however, some other differences which appeared to be less related to the initial differences in diagnoses and medical problems, and which could not be entirely explained by the data currently available. Compared to the total patient population, the participants were less likely to be single or married and more likely to be separated or divorced; they were also more likely to have married more than once. Staying single may have been associated with severity of diagnosis; there was also a fair proportion of older men who had remained single. Another contributing

factor may have been the tendency of the patients with families to spend their free time and weekend passes with them, while those without were prone to stay in the hospital. Since most of the data was collected at these times, the patients without families would have been more accessible to the experimenter. Many, in fact, participated out of sheer boredom and nothing better to do. This factor could have been especially important in the absence of any other financial compensation.

Responses to the Practice Questions

All participants interacted within the context of the same experimental scene. Many of the details of this scene, however, were provided by the participants themselves. Thus, for example, they were told they were currently looking for a new job, but were allowed to develop their own reasons as to why. They were told they were arriving late, but they decided what delayed them. The participants also knew they were the pitcher of their team, but were allowed to judge their own ability.

In doing so, the participants were encouraged to use their imaginations and allowed to give any answer they pleased. Most, however, seemed to be responding on the basis of previous experience. To the extent that these details were participant-provided, they also represented another potentially interesting aspect of this study. Consequently, some of the major details were tabulated, as presented in Table 19. They were based on the participants' responses to the practice tape, in which they essentially rehearsed the crucial aspects of the experimental scene.

In contrast to the patients, the students tended to give voluntary reasons for seeking a new job. Eighty-nine percent indicated they were unable to get along with their boss or co-workers, were tired of the job,

Table 19
Responses to the Practice Questions

Category	Students (<u>n</u> = 44)		Patients (<u>n</u> = 33)		Total (<u>n</u> = 77)	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Reason for looking for a new job:						
Job expired, place went out of business	2	4.5	3	9.1	5	6.5
Fired	2	4.5	8	24.2	10	13.0
Laid off	1	2.3	5	15.2	6	7.8
Lost old job due to illness or injury	0	0	5	15.2	5	6.5
Incompatibility with boss or co-workers	5	11.4	2	6.0	7	9.1
Tired of old job	14	31.8	3	9.1	17	22.0
More time for school	12	27.3	0	0	12	15.6
Seeking advancement, more pay	8	18.2	2	6.0	10	13.0
Unknown or other reason	0	0	5	15.2	5	6.5
Reason for being late:						
Working late	3	6.8	2	6.1	5	6.5
Poorly organized, overslept, etc.	11	25.0	3	9.1	14	18.1
Held up by other people	7	15.9	2	6.1	9	11.7
Stopped to buy beer, store crowded	3	6.8	8	24.2	11	14.3
Heavy traffic or trains in the way	8	18.2	5	15.2	13	16.9
Car broke down	6	13.6	7	21.2	13	16.9
Difficulty finding the place	2	4.6	1	3.0	3	3.9
Stopped to drink the beer	0	0	2	6.1	2	2.6
Unknown or other reason	4	9.1	3	9.1	7	9.1

Table 19--Continued

Category	Students (<u>n</u> = 44)		Patients (<u>n</u> = 33)		Total (<u>n</u> = 77)	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Pitching ability:						
Pretty good to excellent	8	18.2	9	27.3	17	22.1
Average, adequate, or fair	17	38.6	8	24.2	25	32.4
Not very good	14	31.8	9	27.3	23	29.9
Uncommitted, variable, or unclear	5	11.4	7	21.2	12	15.6
Left address to learn about the results:						
Yes	36	81.8	28	84.8	64	83.1
No	8	18.2	5	15.2	13	16.9

needed a more compatible arrangement for going to school, or were seeking advancement. The patients, on the other hand, favored involuntary reasons. Being fired, laid off, ill, or injured; or having their contracts expire or the place go out of business; these problems characterized 63.7% of their responses.

The differences were considerably less dramatic with regard to the participants' reasons for being late, since both groups gave a wide variety of answers. Compared to the patients, the students were more inclined to admit to being poorly organized; they also provided more explanations of being held up by other people. The patients, meanwhile, reported cars that broke down, or complained about having to buy beer in a crowded store.

Inquiries about pitching ability again revealed the greater heterogeneity of the patients. They were more inclined to report high levels of ability, low levels of ability, or even both simultaneously with references to erratic performance or by giving vague unspecific answers.

Finally, the participants were encouraged to leave their names and addresses in order to learn about the final results of the investigation. If this variable is a valid indicator of their interest, then the vast majority, equally distributed across both samples, were curious about the study. Eighty-three percent have requested additional information.

CHAPTER 10

INTERPERSONAL PERCEPTION AND BEHAVIOR

Hypothesis 1

1. Interpersonal behavior will be systematically related to interpersonal perception.

The Measurement of Interpersonal Behavior

As noted previously, the participants conversed with eight stimulus figures. Their responses were recorded on audio tape and later submitted to three experienced coders. The coders evaluated each response with respect to the affiliative and power dimensions. Each response received two scores, one for each dimension, which ranged between -3 and +3. When more than one coder evaluated the same response, their ratings were averaged to form the assigned scores.

The assigned scores were subsequently key-punched onto computer cards for use in the data analyses. Since each participant's response received one rating for each dimension, there were twelve affiliation and power ratings for each set of data (or conversation). These twelve ratings were averaged, resulting in one set mean for affiliation and one for power. The affiliation and power set means were then standardized to the z distribution, based on the respective means and standard deviations of the coder (or coders) who classified them. This procedure allowed the scores obtained from different raters to be compared with one another.

The final result represented the transformed mean of one participant's responses to one stimulus figure, and was the designated interpersonal behavior score. Since there were eight figures, each participant received eight interpersonal behavior scores on affiliation and eight on power.

In many cases, the data was also analyzed for the students and patients separately in order to make comparisons between the two samples and check the generalizability of the obtained results. In these analyses, referred to as the within students and within patients analyses, the means and standard deviations used to transform the ratings were based only on the sets obtained from that sample. In other words, the data were treated as if the ratings from that particular sample were the only data which existed. The means and standard deviations used to transform the data to z scores were thus based only on students in the within students analysis and only on patients in the within patients analysis.

The use of mean ratings instead of individual item ratings did involve the loss of some information (Nunnally, 1967), but also avoided the necessity of multivariate techniques and an inordinate number of participants. In addition, mean ratings are more reliable than individual item ratings (Epstein, 1977, 1979, 1980; Mischel, 1979; Nunnally, 1967) and avoided the problems which would have arisen if some of the participants' responses had proven to be unscorable.

The Measurement of Interpersonal Perception

Interpersonal perception was measured with seven-point bipolar semantic differentials. As described in Chapter 6, there were four scales for affiliation and four for power. They were later scored by assigning integers to the spaces of each scale. As with the other coding systems,

-1, -2, and -3 referred to increasing hostility or submission; 0 to neutral perceptions; and +1, +2, and +3 to increasing friendliness or dominance.

The four scores corresponding to one participant's perceptions of one stimulus figure with respect to one dimension were subsequently averaged. This resulted in eight affiliation scores for each participant, one for his perceptions of each of the eight figures. Similarly, there were eight power scores, one for each figure. They constituted the interpersonal perception scores.

Statistical Procedures

Hypothesis 1 was tested with each participant's interpersonal perception and interpersonal behavior scores. But the independent variable, perception, was measured rather than assigned, thus preventing the use of analysis of variance. Standard correlational techniques were also inappropriate, since there were eight pairs of ratings from each participant. Instead, the statistical methods needed to accommodate a combination of measured and treatment factors as independent variables.

As a result, Hypothesis 1 was tested with generalizability studies similar to those used to assess interrater agreement. The dimensions were again analyzed separately. But instead of three coders, there were now two sets of measures on each participant, perception and behavior. Each set contained eight scores for each participant, one for each figure. Each participant's responses to the figures was considered to be idiosyncratic and not necessarily related to those obtained from the remaining participants. The focus was on the two measures, perception and behavior, to determine whether or not they covaried. The generalizability study, therefore, was based on a two-way analysis of variance. The responses

(or scores for each figure) were nested within subjects, who in turn were repeated across sets of measures (Keppel, 1973, chap. 20). But while subjects was a random variable, the other two variables, figures and measures, were fixed (Keppel, 1973; Shrout & Fleiss, 1979). This meant the computational equation for the intraclass correlation coefficient was not the same as before. Instead (Shrout & Fleiss, 1979, p. 423):

$$\underline{ICC} = \frac{\underline{BMS} - \underline{EMS}}{\underline{BMS} + (\underline{k} - 1)\underline{EMS}}, \quad (13)$$

where: \underline{ICC} = the intraclass correlation coefficient,

\underline{BMS} = between targets mean square,

\underline{EMS} = residual mean square,

\underline{k} = the number of raters (or in this case, sets of measures = 2).

It was tested with the following F ratio (Shrout & Fleiss, 1979, p. 424):

$$\underline{F} = \frac{\underline{BMS}}{\underline{EMS}}, \quad (14)$$

with $(\underline{n} - 1)$ and $(\underline{n} - 1)(\underline{k} - 1)$ degrees of freedom, where \underline{n} = the number of subjects.

Since this coefficient was also a biased estimate (Shrout & Fleiss, 1979; Winer, 1971), it was corrected by multiplying the residual mean square by the same correction factor presented in Equation 6 in Chapter 6.

As with interrater agreement, two intraclass correlation coefficients were calculated for each interpersonal dimension. The first one, \underline{ICC}_G , measured generalized tendencies by contrasting averaged interpersonal perception scores with averaged interpersonal behavior scores. It could be used, for example, to determine whether individuals who consistently attributed hostility also responded with generalized hostility. The other

coefficient, $ICC_{F/S}$, measured specific tendencies by relating perception scores for a specific figure with the corresponding behavior scores. It could determine, for example, whether increased perceptions of hostility in a particular stimulus figure were associated with increased behavioral unfriendliness toward the figure as well.

The following equations, which were derived from Equations 6, 13, and 14 (and Keppel, 1973, chap. 20), were used to test Hypothesis 1:

$$\underline{MS}_{MXS}^* = \left(\underline{MS}_{MXS} \right) \left(\frac{\underline{s} - 1}{\underline{s} - 3} \right); \quad (15)$$

$$\underline{ICC}_G = \frac{\underline{MS}_S - \underline{MS}_{MXS}^*}{\underline{MS}_S + \underline{MS}_{MXS}^*}; \quad (16)$$

$$\underline{F}_G = \frac{\underline{MS}_S}{\underline{MS}_{MXS}^*}, \quad (17)$$

with $(\underline{s} - 1)$ and $(\underline{s} - 1)$ degrees of freedom;

where: \underline{ICC}_G = intraclass correlation coefficient for generalized tendencies,

\underline{F}_G = \underline{F} ratio for generalized tendencies,

\underline{MS}_{MXS}^* = corrected residual mean square for sets of measures and subjects,

\underline{MS}_{MXS} = uncorrected residual mean square for sets of measures and subjects,

\underline{MS}_S = mean square between subjects,

\underline{s} = number of subjects.

Similarly:

$$\underline{MS}_{MXF/S}^* = \left(\underline{MS}_{MXF/S} \right) \left[\frac{(7)(\underline{s})}{(7)(\underline{s}) - 2} \right]; \quad (18)$$

$$\underline{ICC}_{F/S} = \frac{\underline{MS}_{F/S} - \underline{MS}_{MXF/S}^*}{\underline{MS}_{F/S} + \underline{MS}_{MXF/S}^*}; \quad (19)$$

$$\underline{F}_{F/S} = \frac{\underline{MS}_{F/S}}{\underline{MS}_{MXF/S}^*}, \quad (20)$$

with (7)(s) and (7)(s) degrees of freedom;

where: $\underline{ICC}_{F/S}$ = intraclass correlation coefficient for responses to specific figures,

$\underline{F}_{F/S}$ = F ratio for responses to specific figures,

$\underline{MS}_{MXF/S}^*$ = corrected residual mean square for measures and figures nested within subjects,

$\underline{MS}_{MXF/S}$ = uncorrected residual mean square for measures and figures nested within subjects,

$\underline{MS}_{F/S}$ = mean square between figures nested within subjects,

s = number of subjects.

The intraclass correlations used to assess interrater agreement were derived from a random effects analysis of variance model, and were therefore variance components (Shrout & Fleiss, 1979). The ones used to test Hypothesis 1, however, as noted earlier, were based on a mixed effects model. This meant the intraclass correlations were no longer equivalent to variance components and in fact could legitimately assume negative values (Haggard, 1958; Shrout & Fleiss, 1979). Haggard (1958) reported negative coefficients were not uncommon in situations such as this, where there were only two classes (the measures) and the relationship between them was a complementary one.

The significance of a positive intraclass correlation coefficient is typically tested with an F ratio similar to the ones given above.

When the coefficients are negative, however, it is because the residual mean square is larger than the between subjects mean square. This naturally results in an F ratio which is less than one, but significance tables for the F test typically provide only the high percentage points of the F distribution. As noted by Haggard (1958, p. 21), this problem can be counteracted by inverting both the F ratio and the degrees of freedom. This procedure was followed here whenever the intraclass correlation coefficients were negative. The corrected residual mean square was divided by the respective subjects mean square and the order of the degrees of freedom was reversed. The significance of these ratios was then tested in the traditional manner.

Hypothesis 1.a

1.a) There will be similarity with respect to the affiliative dimension. Friendly perceptions will be associated with friendly behaviors, while hostile perceptions will be associated with hostile responses.

Predictions. Both intraclass correlation coefficients with regard to affiliation were expected to be positive and significant. For ICC_G , this would indicate the greater the individual's general tendency to perceive friendliness, the greater the general tendency to respond with friendliness. For $ICC_{F/S}$, this would mean increased friendliness in the perception of a given figure would be associated with increased friendliness in behavior toward that particular figure. Neither correlation would indicate causality.

Results. Table 20 presents the summary table of the analysis with all participants, while Table 21 shows the underlying means and standard deviations associated with each figure. Summary tables for the

Table 20

Hypothesis 1.a: Affiliative Analysis
Based on All Participants

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Subjects	145.78	76	1.92	1.17	n.s.
Figures/subjects	1912.01	539	3.55	3.02	<.001
Measures	16.14	1	16.14		
Subjects X measures	125.05	76	1.65		
Fig./subj. X meas.	633.99	539	1.18		
Total	2832.69				
Affiliative intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
ICC_G	.063	76, 76	1.69	1.14	n.s.
$ICC_{F/S}$	.501	539, 539	1.18	3.00	<.001

Table 21

Hypothesis 1.a: Affiliative Means, Standard Deviations, and Coordinates for All Participants

Figure	Raw data				Coordinates		
	Perception Mean	SD ^a	Behavior Mean	SD ^a	Perception	Behavior	Actual
1	1.37	1.12	.60	.65	.49	.71	.09
2	2.06	.77	.54	.71	.78	.65	.90
3	2.25	.74	.55	.57	.86	.65	.99
4	1.41	.74	.30	.69	.51	.35	.57
5	.00	1.03	.08	.93	-.10	.09	-.18
6	-1.32	1.00	-.43	.88	-.66	-.52	-.82
7	-2.32	.66	-1.21	.87	-1.09	-1.45	-.98
8	-1.63	.96	-.42	1.00	-.79	-.50	-.57

Note. The actual coordinates are the actual affiliation coordinates for the stimulus figures. The perception and behavior coordinates are the perception and behavior means transformed to the same mean (0) and standard deviation (.7170) as the actual affiliation coordinates.

Because perceptions and behaviors were measured through the use of entirely different techniques and standardized separately, the perceptual, behavioral, and actual coordinates are not directly comparable with one another. For example, while the participants' mean behavioral response to Figure 1 was definitely friendly in comparison to their behaviors toward the other figures, it was not necessarily friendlier than their mean perception of this figure. It was also not necessarily friendlier than Figure 1's actual behavior.

^aSD = standard deviation.

corresponding within patients and within students analyses can be found in Appendix E.

The intraclass correlation for figures was .501. It was highly significant ($p < .001$) and remained relatively constant throughout all analyses. Figures perceived as friendly elicited friendliness, while those perceived as hostile elicited hostility. The nonsignificant ICC_G of .063, however, was actually the mean of an interaction between the two samples. Contrary to predictions, the ICC_G for the within students analysis was $-.311$ ($p < .001$), while for the patients it was, as predicted, $.401$ ($p < .025$). Friendly perceptual biases were thus associated with increased behavioral friendliness in the patients, but decreased affiliation in the students.

Hypothesis 1.b

1.b) There will be complementarity with respect to the power dimension. People will behave submissively when they perceive the other as dominant. They will respond with dominance when they regard the behavior of the other as submissive.

Predictions. Both intraclass correlations with regard to power were expected to be negative and significant. For ICC_G , this would indicate the stronger the general tendency to perceive dominance, the greater the general tendency to respond with submission. For $ICC_{F/S}$, this would mean increases in the perceived power of a given stimulus figure would be associated with increased submission toward the specific figure. Again, neither correlation would indicate causality.

Results. Table 22 presents the summary tables, while Table 23 shows the associated means and standard deviations. As predicted, both

Table 22
Hypothesis 1.b: Power Analysis
Based on All Participants

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	<u>F</u> ratio	prob.
Subjects	176.75	76	2.33	.60	n.s.
Figures/subjects	781.44	539	1.45	.71	n.s.
Measures	.48	1	.48		
Subjects X measures	294.63	76	3.88		
Fig./subj. X meas.	1101.41	539	2.04		
Total	2354.71	1231			
Power intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	<u>F</u> ratio ^a	prob.
<u>ICC</u> _G	-.263	76, 76	3.98	1.71	<.025
<u>ICC</u> _{F/S}	-.172	539, 539	2.05	1.41	<.01

^aThese are actually inverted F ratios, since the between subjects mean squares were smaller than the corresponding residual mean squares. They were calculated this way so that the significance of the relationship could be determined from the traditional statistical tables of the F distribution.

Table 23

Hypothesis 1.b: Power Means, Standard
Deviations, and Coordinates for
All Participants

Figure	Raw data				Coordinates		
	Perception Mean	SD ^a	Behavior Mean	SD ^a	Perception	Behavior	Actual
1	1.57	.89	-.43	.88	.84	-1.07	.99
2	.80	1.10	-.38	.96	.43	-.97	.43
3	.82	1.11	-.07	.93	.45	-.17	-.05
4	-1.57	1.02	.05	.82	-.80	.13	-.82
5	-2.20	.76	.29	.90	-1.12	.72	-.98
6	-1.25	.95	.20	.98	-.63	.51	-.57
7	.34	1.29	.38	1.10	.20	.95	.18
8	1.18	1.12	-.04	1.10	.63	-.11	.82

Note. The actual coordinates are the actual power coordinates for the stimulus figures. The perception and behavior coordinates are the perception and behavior means transformed to the same mean (0) and standard deviation (.6919) as the actual power coordinates.

Because perceptions and behaviors were measured through the use of entirely different techniques and standardized separately, the perceptual, behavioral, and actual coordinates are not directly comparable with one another. For example, while the participants' mean behavioral response to Figure 7 was definitely dominant in comparison to their behavior toward the other figures, it was not necessarily more dominant than their mean perception of this figure. It was also not necessarily more dominant than Figure 7's actual behavior.

^aSD = standard deviation.

intraclass correlation coefficients were negative and statistically significant. They were $-.263$ for generalized tendencies and $-.172$ for the responses to specific figures. The corresponding within students and within patients analyses (Appendix E) produced similar results, except that ICC_G for the patients did not quite reach statistical significance ($ICC_G = -.248, p < .10$). Increased perceptions of dominance in others were thus associated with greater behavioral submission, both at the level of responses to specific figures and with respect to overall biases.

Discussion

Hypothesis 1 concerned the relationship between perception and behavior. It predicted similarity for the affiliative dimension and complementarity in power. At the level of perceptions and responses to individual figures, it was consistently supported in both samples. The predicted generalized tendencies with respect to the power dimension were also supported, although, as noted earlier, the effect did not quite reach significance in the patient sample. But generalized tendencies on the affiliative dimension resulted in an unexpected interaction. For the patients, friendlier perceptual biases were associated with friendlier behavior. The students, on the other hand, were apparently more sociable when the perceptual biases were less friendly.

Generalized tendencies. In order to explore this relationship further, the distributions of affiliative perceptions and behaviors for all participants were divided as closely as possible to their respective medians. (Since there was an odd number of participants and several of those in the center obtained identical scores, this division could not be made exactly.) The cutoff scores were $.234$ on perceptions and $.025$

on behaviors. Fourfold frequency tables were then constructed to determine what percentage of each sample was classified into each cell.

As can be seen in Table 24, the students were less affiliative than the patients in their overall perceptions, but more affiliative in their behavior. Only 45% of the students, contrasted with 60% of the patients, scored high on perception. On behavior, 57% of the students were highly affiliative, but only 33% of the patients.

Of the thirteen patients who scored low on perceptions, only one continued to be highly affiliative in his behavior. But in the student sample, 75% of the low perceivers continued to be highly affiliative in their behavior as well; they in fact constituted 41% of the student sample. These figures, along with the corresponding intraclass correlations, indicate that while the students were less biased toward perceptions of friendliness, they were more biased toward behavioral expressions of it.

Table 25 shows the mean perceptions and behaviors toward the hostile and friendly figures for each cell of the contingency tables. As can be seen from these figures, the generalized tendencies were extended to both types of stimulus figures. It is also interesting to note that the sum of the hostile and friendly means for low perceivers was very close to zero, while those for high perceivers were substantially higher. Since the sum of the actual affiliation coordinates was equal to zero, these figures indicate the low perceivers were in fact less biased than the high ones.

These results were in line with interpersonal theory in that perceptual biases were more characteristic of maladjusted people (psychiatric inpatients) than normals (college students). But in contrast to Carson's (1979) predictions, the biases of the patients were toward greater affiliativeness rather than less. It is also not clear why the students who

Table 24

Fourfold Frequency Tables of Affiliative Biases
in Perception and Behavior in Each Sample

		Students					
		Affiliative perception					
		Low		High		Total	
		<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Affiliative behavior	High	18	41	7	16	25	57
	Low	6	14	13	29	19	43
	Total	24	55	20	45		
		Patients					
		Affiliative perception					
		Low		High		Total	
		<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Affiliative behavior	High	1	3	10	30	11	33
	Low	12	37	10	30	22	67
	Total	13	40	20	60		

Note. Cutoff scores were .234 on mean affiliative perceptions and .025 on mean affiliative behaviors.

Table 25

Sample Membership and Affiliative Biases in
Perception and Behavior: Means
Associated with Each Cell

			Affiliative perception			
<u>Students</u>			Low		High	
			Perception	Behavior	Perception	Behavior
Affiliative behavior	High	Friendly figures	1.67	.92	1.73	.94
		Hostile figures	-1.52	-.04	-.88	.16
	Low	Friendly figures	1.61	.38	2.06	.14
		Hostile figures	-1.83	-.68	-1.09	-.80
			Affiliative perception			
<u>Patients</u>			Low		High	
			Perception	Behavior	Perception	Behavior
Affiliative behavior	High	Friendly figures	1.50	.94	1.99	.66
		Hostile figures	-1.63	-.04	-.57	.10
	Low	Friendly figures	1.30	-.08	2.02	.17
		Hostile figures	-1.74	-1.15	-1.02	-1.13

Note. See Table 24 for the cutoff scores and number in each cell.

perceived greater affiliation responded with less sociability. These relationships can not be explained with the data obtained here and their robustness is currently unknown. Since the critical intervening variables have not yet been identified, they do constitute a worthy topic for further investigation.

Situational effects. In addition to generalized response tendencies, this study also found substantial evidence of situational effects. In general, the perceptions of individual figures were closely related to the previously obtained actual coordinates. In fact, the product-moment correlation between the perceptual means and the actual coordinates was .965 for the affiliative dimension and .957 for power. Both coefficients were significant at well beyond the .01 level and indicated substantial agreement.

Further evidence of strong situational effects can be seen in Figure 6. It also illustrates the interrelationships between the two dimensions--an issue which was not directly addressed in the preceding analyses. Here, the perception and behavior means for each dimension were converted to the same mean (0) and standard deviation (.7170 for affiliation, .6919 for power,) as the actual coordinates, and then plotted with respect to the affiliative and power dimensions. For the sake of clarity, arrows were drawn from each perception point to the corresponding behavior point. Despite this, the correlational nature of the data must be emphasized. Causality can not be inferred, especially in light of the fact that the perceptions were measured after the interactions.

A comparison of Figure 6 with Figure 5 indicates, once again, the similarity between the perceived interpersonal styles and the actual

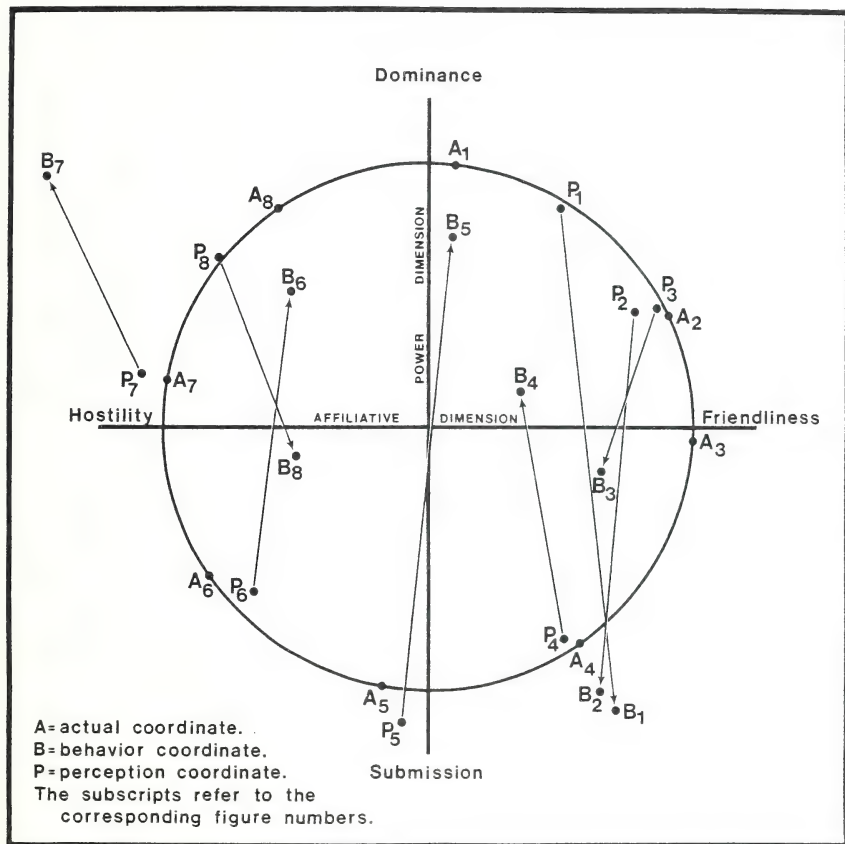


Figure 6. Schematic diagram of the relationship between the perception and behavior coordinates for all participants.

Because perceptions and behaviors were measured through the use of entirely different techniques and standardized separately, the perception, behavior, and actual coordinates are not directly comparable with one another. For example, while the participants' mean behavioral response to Figure 7 was definitely hostile dominant in comparison to their behavior toward the other figures, it was not necessarily more hostile or dominant than their mean perception of this figure. It was also not necessarily more hostile or dominant than Figure 7's actual behavior.

coordinates. The principle discrepancies were for Stimulus Figure 1 to be rated much higher on friendliness, for Stimulus Figure 3 to be seen as dominant, and for Stimulus Figure 8 to be regarded as more hostile than Stimulus Figure 6.

In addition, the arrows in Figure 6 are much more vertical than horizontal. Since Hypothesis 1 predicted similarity with respect to affiliation and complementarity in power, the direction of these lines provides even further support for the hypothesis.

This figure demonstrates some other interesting relationships as well. According to the actual coordinates, Figure 3 was friendly submissive, but the participants perceived him as being very similar to Figure 2. Despite this, the behavioral ratings clearly discriminated between the two. The differences were in the predicted direction, with the responses to Figure 3 being considerably more dominant than those for Figure 2.

Responses to hostility. As noted in Chapter 3, the results of previous research were often inconsistent with regard to reciprocity in hostility. These results ran the entire range from hostile dominance eliciting counter hostile dominance (e.g., Becker & Krug, 1964; Kronberg, 1975; Sebastian, Buttino, Burzynski & Moore, 1981; Shannon & Guernsey, 1973; M. Snyder & Swann, 1980), to no relationship with respect to hostility (e.g., Alexander, 1973; Margolin & Wampold, 1981; J. Snyder, 1977), to the predicted complementarity between hostile submission and hostile dominance (e.g., Coyne, 1976; Hammen & Peters, 1978; Heller, Myers, & Kline, 1963; Howes & Hokanson, 1979; Rausch, 1965), to hostile submission, in the form of depression, actually eliciting friendly dominance (e.g., Hokanson, Sacco, Blumberg, & Landrum, 1980). Figure 6 clarifies these results and provides specific predictions which can be tested in future studies.

Beginning with Stimulus Figure 7, it is apparent that when the participants perceived extreme hostility combined with dominance, the response was counter hostile dominance. Moderate levels of hostility (Stimulus Figures 6 and 8) brought the predicted complementarity between hostile dominance and hostile submission. The points for Figure 5 were actually the means of an interaction involving the two participant samples (Tables 26 and 27). The students' mean perception of this figure was one of mild hostility combined with extreme submission; their mean response was slightly warm and highly dominant. The patients, on the other hand, perceived Figure 5 as extremely submissive but neutral on affiliation, while their mean response was also dominant but mildly hostile. This interaction was consistent with Hokanson et. al.'s (1980) finding that maladjusted persons were more noncooperative when assigned the high-power role than well adjusted ones. It was also similar to Margolin and Wampold's (1981) report of reciprocity for negative behaviors among distressed couples but not among nondistressed ones.

Thus, it appears the reactions elicited by perceptions of hostility depend upon the level of hostility, the level of dominance, and the adjustment of the persons who are doing the perceiving. Low levels of hostility combined with submissiveness seem to evoke reciprocal hostile dominance from maladjusted persons and friendly dominance from normals. Perceptions of moderate levels of hostility elicit complementarity between hostile dominance and hostile submission, as predicted by the initial hypothesis. High levels of hostility provoke hostile dominance.

In the absence of further research, it is impossible to say whether or not these patterns are typical, or what the underlying psychological reasons might be. But the comments of Harry Stack Sullivan seem

Table 26

Hypothesis 1.a: Affiliative Means for
Students and Patients

Figure	Perception			Behavior		
	Students	Patients	r^a	Students	Patients	r^b
1	1.29	1.47	.08	.68	.49	-.15
2	2.10	2.00	-.06	.65	.41	-.17
3	2.28	2.22	-.04	.65	.41	-.22*
4	1.48	1.32	-.11	.50	.02	-.35**
5	-.19	.27	.22*	.37	-.30	-.36**
6	-1.39	-1.24	.07	-.17	-.78	-.35**
7	-2.31	-2.35	-.03	-1.19	-1.24	-.03
8	-1.77	-1.44	.17	-.28	-.60	-.16

Note. These means are based on the means of students and patients in the analyses with all participants. The means for the within students and within patients analyses are in Appendix E. The affiliative means for all participants were .229 on overall perceptions and 0 on overall behaviors.

r^a refers to the product-moment correlation between sample membership (student versus patient) and interpersonal perception of the corresponding figure. Positive correlations indicate the patients scored higher than the students, negative ones indicate they scored lower.

r^b refers to the product-moment correlation between sample membership (student versus patient) and interpersonal behavior. Positive correlations indicate the patients scored higher, negative ones indicate they scored lower.

* $p < .06$.

** $p < .05$.

Table 27

Hypothesis 1.b: Power Means for
Students and Patients

Figure	Perception			Behavior		
	Students	Patients	r^a	Students	Patients	r^b
1	1.78	1.30	-.27*	-.54	-.57	.15
2	.91	.64	-.12	-.48	-.26	.12
3	.55	1.20	.29*	-.16	.05	.11
4	-1.71	-1.38	.16	.02	.09	.04
5	-2.32	-2.04	.19	.31	.26	-.03
6	-1.39	-1.07	.17	.17	.25	.04
7	.63	-.05	-.25*	.24	.55	.14
8	1.53	.72	-.36*	-.16	.11	.12

Note. These means are based on the means of students and patients in the analyses with all participants. The means for the within students and within patients analyses are in Appendix E. The power means for all participants were -.039 on overall perceptions and 0 on overall behaviors.

r^a refers to the product-moment correlation between sample membership (student versus patient) and interpersonal perception of the corresponding figure. Positive correlations indicate the patients scored higher than the students, negative ones indicate they scored lower.

r^b refers to the product-moment correlation between sample membership (student versus patient) and interpersonal behavior. Positive correlations indicate the patients scored higher, negative ones indicate they scored lower.

* $p < .05$.

particularly relevant to this conclusion:

. . . anger is much more pleasant to experience than anxiety. The brute facts are that it is much more comfortable to feel angry than anxious. Admitting that neither is too delightful, there is everything in favor of anger. Anger often leaves one sort of worn out, and one thing and another, very often makes things worse in the long run, but there is a curious feeling of power when one is angry. In other words, the expressive pattern of anger tends to drive things away. Not only is anxiety thus avoided, but the initial index of its presence fades from observation . . . (Sullivan, 1954/1970, p. 103)

We can thus speculate normals have a higher anxiety threshold than mal-adjusted persons, and that once this threshold is reached in any given individual, hostility is countered with hostility. When the hostility is especially threatening and abusive, the urge to act decisively and aggressively is even stronger.

CHAPTER 11

STIMULUS STYLE AND INTERPERSONAL RESPONSE

Hypothesis 2

2. Interpersonal behavior will be systematically related to the interpersonal style of the other.

Statistical Procedures

In this case, the independent variable, the treatments, consisted of the interpersonal styles of the stimulus figures. The dependent variable, behavior, was measured with the interpersonal behavior scores (Chapter 10). The affiliative and power dimensions were analyzed separately, each with a repeated-measures analysis of variance, in which stimulus figures were repeated across subjects.

One possible test of this hypothesis consisted of contrasting friendly figures with hostile ones, and for the power dimension, dominant figures with submissive ones. This analysis would test for overall differences between the two sides of each dimension. The greater the polarity of the stimulus styles, the higher the probability of obtaining significant differences.

But as noted in Chapter 7, the stimulus figures were not polarized with respect to the underlying dimensions. Instead, they were scattered throughout the entire range of both dimensions. Since each treatment mean in the resulting F ratio would be weighted equally, this meant the above technique did not represent the most sensitive test of this hypothesis.

Planned comparisons, on the other hand, basically amount to multiplying the mean of each treatment by a predetermined constant. Different means can be multiplied by different constants, the only requirement is that the sum of all of the constants for a given comparison be equal to zero (Keppel, 1973). By using planned comparisons, one can test hypotheses which are more precise than simply predicting overall differences between treatments. Keppel (1973, p. 103), for example, reported "we can view a comparison as reflecting a correlation between the weighting coefficients, on the one hand, and the treatment means, on the other. The coefficients represent an idealized outcome of an experiment . . ." One can also use comparisons to determine whether the treatment means conform to a particular mathematical function. This later use is known as trend analysis (Keppel, 1973).

In this case, when both dimensions were considered simultaneously, we were interested in a circular function. The stimulus figures were designed on the basis of the Leary circumplex, and the responses were expected to match that system as well. Similarity was predicted for the affiliative dimension, so the affiliativeness of the responses to each figure was expected to match the corresponding actual affiliation coordinates shown in Figure 5 (Chapter 7). The same was true of the power dimension, but since complementarity was predicted, the expected behaviors corresponded to the actual power coordinates multiplied by -1.00 . The obvious choices for the weighting coefficients, therefore, were the actual coordinates for the affiliative dimension, and the actual coordinates multiplied by -1.00 for the power dimension.

The Leary system was very helpful in this regard, because the ideal locations in Figure 5 were symmetrical with respect to each dimension.

Consequently, the sum of the ideal coordinates on each dimension was equal to zero. Experimental luck also meant that with some minor modifications (Chapter 7), the sum of the actual coordinates on each dimension was also equal to zero.

Since the planned comparisons were based on a single-factor repeated-measures analysis of variance, the error term for the main treatment effect of figures consisted of the mean square for the subjects by figures interaction. The interaction term was used because all subjects were exposed to all treatment conditions, and because in testing the main effect, all the treatment means were being compared equally (Keppel, 1973, p. 409).

But in planned comparisons of specific means, Keppel (1973, p. 409) reported the subject by treatment interaction is not necessarily the most appropriate error term, on the grounds that not all of the means are being compared. Instead, since the subject by treatment interaction is not the same for each comparison, it may be more advisable to use an error term which is calculated specifically for that comparison.

But the use of a comparison-specific error term is not without some controversy. Keppel noted that different statisticians make different recommendations, and that furthermore, it is difficult to specify when the main-effect error term is most appropriate and when it is not. However, he appeared to favor the comparison-specific error term because even if it is used inappropriately, "there will be no bias, since the overall error term and the separate error terms provide estimates of the same thing: error variance plus interaction effects" (1973, p. 409). He did note, however, that there is some "loss of power due to the reduction in df for the denominator term of the F ratio" (Keppel, 1973, p. 409).

The principle computational difference between the overall and

comparison-specific error terms is that the overall error term weights the scores in all conditions equally. The comparison-specific error term, on the other hand, differentially weights the scores in each condition, depending upon the treatment weights used in the calculation of the comparison itself.

All of the treatments were entered into the comparisons examined here, but each of them was weighted differently. Consequently, the comparison-specific error term was selected for the analyses presented here. Later results also indicated it was generally the more conservative of the two and never altered the interpretation as to whether or not the effects were statistically significant. The sums of squares for the planned comparisons were calculated on the basis of the following equations, which were adapted from Keppel's (1973, p. 412):

$$\text{SS Comparison} = \frac{\left[\sum_{j=1}^{j=8} \underline{w}_j \left(\sum_{i=1}^{i=s} \underline{\text{IBS}}_{ij} \right) \right]^2}{s \left[\sum_{j=1}^{j=8} \left(\underline{w}_j \right)^2 \right]}, \quad (21)$$

with 1 degree of freedom.

$$\text{SS Residual} = \frac{\sum_{i=1}^{i=s} \left[\sum_{j=1}^{j=8} \left(\underline{w}_j \right) \left(\underline{\text{IBS}}_{ij} \right) \right]^2}{\sum_{j=1}^{j=8} \left(\underline{w}_j \right)^2} - (\text{SS Comparison}), \quad (22)$$

with $(s - 1)$ degrees of freedom.

In this case:

IBS_{ij} = the interpersonal behavior score for Subject i responding to Figure j .

W_j = the comparison weighting coefficient for Figure j , in which

$W_j = A_j$ on the affiliative dimension, and

$W_j = -(A_j)$ on the power dimension,

where A_j is the actual stimulus figure coordinate.

s = the number of subjects.

The planned comparisons essentially indicated whether there were significant differences between the two sides of each dimension, allowing for the fact that the tapes were not polarized with respect to these dimensions. Since only one comparison was computed for each analysis, the experimentwise error rate was unaffected and all comparisons were orthogonal.

An additional statistic, namely:

$$r^2_{\text{comparison}} = \frac{\text{Sum of squares for the comparison}}{\text{Sum of squares for the overall treatment}}, \quad (23)$$

indicated the proportion of between-figures variance the planned comparison accounted for (Keppel, 1973, p. 103). It measured the degree of fit between the actual coordinates and the responses associated with each figure.

Hypotheses 2.a and 2.c predicted mean differences, so the interpersonal behavior scores were used as the dependent variable in these analyses. But Hypotheses 2.b and 2.d predicted differences in the variability of the elicited responses. Statistically, they would be manifested as heterogeneity of within-treatment variances. In other words,

the variances associated with some figures would be significantly greater than the variances associated with others.

O'Brien (1981) reviewed a number of measures designed to assess variability and reported that "traditional homogeneity of variance tests, such as the $F = \frac{s_1^2}{s_2^2}$ test for two groups and Bartlett's χ^2 , Hartley's F_{\max} , and Cochran's C tests for one-way designs, are severely affected by the distributional form of the data, that is, they are not robust to nonnormality" (p. 570). Two other methods reviewed by O'Brien were also considered inappropriate for this study. One (based on logarithms) was rejected because it lacked power and did not provide unique statistics, and the other (the r transformation method) because it had not been investigated with repeated-measures designs.

Another method, also recommended by Keppel (1973, p. 81), consisted of an analysis of variance on the absolute deviations between the scores and the cell means. O'Brien (1981) reported it was more robust than the others, but it was still not asymptotically distribution free. It could thus produce excessive Type I error rates.

But one can also use absolute deviations around the cell median instead of the cell mean. According to O'Brien (1981, p. 571), this measure is asymptotically distribution free, robust, and "conforms to the common definition of dispersion about the median, the average absolute deviation . . . O'Brien found that . . . [it] . . . produces excellent power when the underlying distribution of the raw data has heavy tails."

Given the nature of the rating scales (with only seven categories), the subject population (with a high percentage of psychiatric inpatients), and the stimulus situations (which were quite intense in their overall styles), the investigator anticipated the possibility of heavy tailed,

asymptotic distributions for each of the individual cells and possibly for the overall study as well. Consequently, the test of variability was based on the absolute deviations between the interpersonal behavior scores and the cell medians. This was done by transforming each participant's interpersonal behavior scores into interpersonal deviation scores, as outlined in the following equation:

$$\underline{IDS}_{ij} = \left| \underline{IBS}_{ij} - \underline{Md}(\underline{IBS}_j) \right|, \quad (24)$$

where: \underline{IDS}_{ij} = interpersonal deviation score for Subject i and Stimulus Figure j ,

\underline{IBS}_{ij} = interpersonal behavior score for Subject i and Stimulus Figure j ,

$\underline{Md}(\underline{IBS}_j)$ = the median of all of the subjects' interpersonal behavior scores for Stimulus Figure j .

These absolute deviation scores were then used to construct planned comparisons similar to those with the interpersonal behavior scores. The principle difference was that the treatment means in these analyses actually represented the amount of variability in response to each figure. The weighting coefficients for the affiliative dimension were identical to those described earlier, since greater variability was predicted as the figures increased in friendliness. But on the power dimension, the weighting coefficients associated with the interpersonal deviation scores were identical to the power coordinates themselves. This was because dominant figures were expected to elicit greater variability than submissive ones. As a result, the dominant figures were assigned larger weighting coefficients than the submissive ones.

Hypothesis 2.a

2.a) There will be similarity with respect to the affiliative dimension. Friendliness will elicit friendliness, while hostility will elicit hostility.

Predictions. The dependent measures were the interpersonal behavior scores on affiliation. The treatment means, indicating expressed affiliation, were expected to progressively increase as the figures shifted from extreme hostility to extreme friendliness. The F ratio for the planned comparison was expected to be statistically significant and a large r^2 comparison was also anticipated.

Results. The overall analysis (Table 28) showed highly significant main effects for both figures and subjects. The planned comparison also led to a highly significant F ratio, and resulted in an r^2 comparison of .771. As can be seen in Table 29, the affiliative behavior means, with the exception of Figure 1, did progress in the expected order.

Additional within students and within patients analyses were also performed (Appendix E). These analyses were identical to the ones presented here, except the scores were transformed on the basis of each coder's ratings of that particular sample only. Aside from the reversal of Figures 6 and 8, (and 5 and 6 for the patients,) the orders of the mean responses to each figure were similar to the one with both samples combined. The F ratios were significant and the corresponding r^2 comparisons were .702 for students and .813 for patients. The hypothesis was confirmed.

Table 28

Hypothesis 2.a: Affiliative Mean Score Analysis
Based on All Participants

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	221.47	7	31.64	74.26	<.001
Subjects	163.87	76	2.16	5.06	<.001
Figures X subjects	226.66	532	.43		
Total	612.00	615			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	170.68	1	170.68	271.10	<.001
Comparison X subjects	47.85	76	.63		

Note. r^2 comparison = .771.

Table 29

Hypothesis 2: Affiliative and Power Means for
Students, Patients, and All Participants

		Mean behavior scores			Mean deviation scores		
Figure	Actual coordinate	Students	Patients	Total sample	Students	Patients	Total sample
Affiliative dimension							
1	.09	.68	.49	.60	.53	.43	.49
2	.90	.65	.41	.54	.56	.51	.54
3	.99	.65	.41	.55	.48	.42	.46
4	.57	.50	.02	.30	.58	.52	.55
5	-.18	.37	-.30	.08	.60	.90	.72
6	-.82	-.17	-.78	-.43	.70	.71	.70
7	-.98	-1.19	-1.24	-1.21	.68	.80	.73
8	-.57	-.28	-.60	-.42	.72	.91	.80
Power dimension							
1	.99	-.54	-.27	-.43	.79	.72	.76
2	.43	-.48	-.26	-.38	.76	.87	.80
3	-.05	-.16	.05	-.07	.86	.72	.80
4	-.82	.02	.09	.05	.64	.67	.65
5	-.98	.31	.26	.29	.66	.85	.74
6	-.57	.17	.25	.20	.80	.75	.78
7	.18	.24	.55	.38	1.02	.73	.90
8	.82	-.16	.11	-.04	.85	.90	.87

Note. The student and patient means are based on the overall analysis. The within students and within patients analyses are in Appendix E.

Hypothesis 2.b

2.b) Friendliness will elicit more between subjects variability in interpersonal responses (with respect to the affiliative dimension) than hostility will.

Predictions. The dependent measures were the interpersonal deviation scores on affiliation. The treatment means, indicating expressed variability, were expected to progressively increase as the figures shifted from extreme hostility to extreme friendliness. The F ratio for the planned comparison was expected to be statistically significant and a large r^2 comparison was also anticipated.

Results. The overall analysis (Table 30) resulted in significant main effects for figures and subjects. These effects were also significant for the within patients analysis, but not for the within students analysis where the responses seemed to be much more homogeneous. Despite this, all analyses did result in significant planned comparisons. However, an examination of the means in Table 29 indicated the hypothesis was not supported, since the treatment means progressively increased in reverse order. Contrary to predictions, it was the hostile figures, and not the affiliative ones, which resulted in the largest between subjects variabilities. In addition, the underlying r^2 comparisons were quite substantial-- .706 for the overall analysis, .630 for the within patients study, and .868 for the students.

Hypothesis 2.c

2.c) There will be complementarity with respect to the power dimension. Dominance will elicit submission and submission will elicit dominance.

Predictions. The dependent measures were the interpersonal behavior

Table 30

Hypothesis 2.b: Affiliative Deviation Score
Analysis Based on All Participants

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	9.05	7	1.29	6.03	<.001
Subjects	30.51	76	.40	1.87	<.001
Figures X subjects	114.06	532	.21		
Total	153.63	615			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	6.40	1	6.40	26.56	<.001
Comparison X subjects	18.30	76	.24		

Note. r^2 comparison = .706.

scores on power. The treatment means, indicating expressed power, were expected to progressively decrease as the stimulus figures shifted from extreme submission to extreme dominance. The F ratio for the planned comparison was expected to be statistically significant, and again, a large χ^2 comparison was also anticipated.

Results. All three analyses produced a similar pattern of results, with those for the overall analysis being presented in Table 31. The planned comparisons were all significant, as were the main effects for subjects and figures. The corresponding pattern of means (Table 29) was also in the predicted direction. There was, however, a distinct tendency for friendly figures to elicit more submission and less dominance than hostile ones. The corresponding χ^2 comparisons were .425 for the analysis with all participants, .537 for the within students study, but only .174 for the patients.

Hypothesis 2.d

2.d) Dominance will elicit more between subjects variability in interpersonal responses (with respect to the power dimension) than submission will.

Predictions. The dependent measures were the interpersonal deviation scores on power. The treatment means, indicating expressed variability, were expected to progressively increase as the stimulus figures shifted from extreme submission to extreme dominance. The F ratio for the planned comparison was again expected to be significant, and a large comparison χ^2 was also anticipated.

Results. The results of these analyses demonstrated the greater sensitivity of the planned comparisons. Although the main effect for figures was nonsignificant in all three analyses, the comparison still

Table 31

Hypothesis 2.c: Power Mean Score Analysis
Based on All Participants

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	46.38	7	6.63	14.02	<.001
Subjects	314.25	76	4.13	8.75	<.001
Figures X subjects	251.37	532	.47		
Total	612.00	615			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	19.73	1	19.73	37.36	<.001
Comparison X subjects	40.15	76	.53		

Note. r^2 comparison = .425.

achieved significance in two of them. The all participants (Table 32) and within students (Appendix E) analyses both produced patterns which were in the predicted directions. The respective r^2 comparisons were .333 and .284. However, the planned comparison was not significant in the within patients analysis, apparently because the responses to Figure 5, the most submissive one, were highly variable. The corresponding r^2 comparison was thus a miniscule .018. Consequently, while the hypothesis was supported, the evidence was considerably weaker than for the preceding ones.

Discussion

Of the four predictions, three were supported and the fourth was reversed. There was strong evidence of reciprocity in interpersonal behavior. As predicted, it took the form of similarity on the affiliative dimension and complementarity in power.

The mediating role of perception. The interrelationships between stimulus and response behavior are graphically depicted in Figure 7. In doing so, the mean behavior scores for all participants (Table 29) were converted to the same mean (0) and standard deviations (.7170 for affiliation, .6919 for power) as the actual stimulus coordinates. The resulting behavior coordinates (Tables 21 and 23), along with the actual coordinates, were then plotted with respect to the affiliative and power dimensions. In order to clarify the underlying relationships, arrows were again drawn from each stimulus coordinate to the corresponding behavior coordinate. As with Hypothesis 1, the arrows are again more vertical than horizontal-- a further indication of similarity with respect to affiliation and complementarity in power.

Table 32

Hypothesis 2.d: Power Deviation Score Analysis
Based on All Participants

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	3.25	7	.46	1.84	<.10
Subjects	58.84	76	.77	3.08	<.001
Figures X subjects	133.88	532	.25		
Total	195.97	615			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	1.08	1	1.08	4.47	<.05
Comparison X subjects	18.39	76	.24		

Note. r^2 comparison = .333.

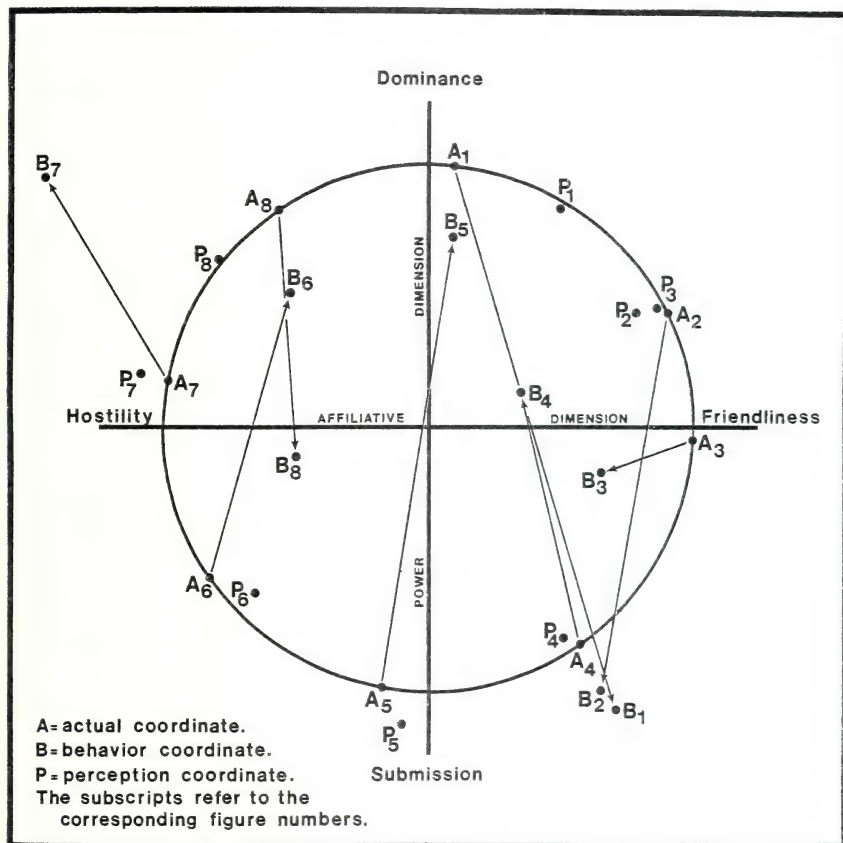


Figure 7. Schematic diagram of the relationship between the actual stimulus figure coordinates and the behavior coordinates for all participants.

Because perceptions and behaviors were measured through the use of entirely different techniques and standardized separately, the perception, behavior, and actual coordinates are not directly comparable with one another. For example, while the participants' mean behavioral response to Figure 7 was definitely hostile dominant in comparison to their behavior toward the other figures, it was not necessarily more hostile or dominant than their mean perception of this figure. It was also not necessarily more hostile or dominant than Figure 7's actual behavior.

However, with the exception of Stimulus Figure 8, the arrows in this graph are less vertical than those between perception and behavior (Figure 6). While the significance of the discrepancies between these angles was not tested, these differences do have important theoretical implications. They suggest perception does in fact function as a mediating variable between stimulus and participant behavior. While, as noted earlier, the mean perceptions of the stimulus figures were very closely related to the actual coordinates, the elicited behavior appears to be even more strongly related to perception than to the actual stimulus behavior. This difference can be demonstrated by correlating the obtained behavior means (Table 29) with the actual coordinates and then with the corresponding perception means (Tables 21 and 23). For the affiliative dimension with all participants, the product-moment correlation between behavior and the actual coordinates was .878, but between behavior and perception, it was .950. The respective power coefficients were $-.652$ for the actual coordinates and $-.659$ between behavior and perception. It should be noted, however, that these figures are based on data aggregated across participants. It is not certain whether the same relationships would hold at the individual level.

Since the perceptual means were highly correlated with the actual coordinates, and since the behavior scores were identical for both analyses, the pattern of relationships between stimulus behavior and the participants' responses were virtually identical for both Hypotheses 1 and 2. As this pattern of results was discussed rather extensively under Hypothesis 1, it will not be repeated here.

Contingency patterns with respect to hostility and friendliness.

Contrary to the predictions of Hypothesis 2.b, hostile figures were found

to elicit more variability in behavior with respect to the affiliative dimension than friendly ones. This relationship was quite consistent and particularly strong for the hostile dominant figures. It was also observed by the investigator while collecting the data. Thus, while contrary to the hypothesis, the results of the analyses were not surprising and had occasionally been reported in previous studies (Alexander, 1973; Margolin & Wampold, 1981). In general, they occurred because the friendly figures tended to elicit friendly responses from all participants. When confronted with the hostile figures, however, only some persisted in their attempts to be sociable and polite. The remainder, to various degrees, surrendered to the provocative antagonism which confronted them. Thus, it was not the friendly figures which differentiated between affiliative and nonaffiliative participants, but the hostile ones.

Another way of viewing these interactions is in terms of the contingencies with respect to affiliation. The friendly figures elicited relatively homogeneous and friendly responses; consequently, for these figures, there was contingent friendliness. The mean responses to the hostile figures were definitely more hostile, but the responses were also much more variable. This indicated that for the hostile figures, the contingencies with regard to the affiliative dimension were considerably weaker.

These contingency patterns were similar to those obtained in previous studies with normal couples and families (Alexander, 1973; Margolin & Wampold, 1981). They were contrary to the studies of distressed couples and families (Alexander, 1973; Margolin & Wampold, 1981), laboratory games (Kelley & Stahelski, 1970) and preadolescent boys (Raush, 1965; Raush, Dittmann, & Taylor, 1959a). In these later studies, contingent hostility

was also reported, and in some cases, as with competitors or hyperaggressive boys in residential treatment, there was an absence of contingent friendliness.

The critical factor in these patterns may actually be the competitiveness of the relationships, particularly in light of Duke and Nowicki's (1982) observation that anticomplementarity in interpersonal style seems to facilitate competition. Thus, one would expect competitors in a competitive game, delinquent teenagers with their parents, and hyperaggressive boys amongst a group of hyperaggressive boys to be especially competitive. These were also the circumstances in which investigators reported contingent hostility in the absence of contingent friendliness (Alexander, 1973; Kelley & Stahelski, 1970; Raush, 1965; Raush, Dittmann, & Taylor, 1959a). Normal boys with their peers--as well as distressed married couples--are probably still competitive, but less so. They exhibited contingent friendliness and contingent hostility (Margolin & Wampold, 1981; Raush, 1965), or in one study (J. Snyder, 1977), no contingencies. Finally, normal adult interactions are likely to be even less competitive, and in this case, the results have generally been contingent friendliness with considerably less contingent hostility (Alexander, 1973; Margolin & Wampold, 1981; J. Snyder, 1977).

This study, of course, used both students and psychiatric inpatients and obtained similar results in both samples. It must be remembered, however, that the above discussion was limited to the quality of the relationship, and not necessarily to the mental health of the individuals involved. In this case, all participants interacted with the same figures under circumstances which were clearly not competitive. In addition, all observations were confined to the very initial stages of a person to

person interaction. As a result, friendliness may have been facilitated even when the other was rather antagonistic.

Affiliative differences between patients and students. Sample differences were noted in that the patients tended to be less friendly with all of the figures and to have lower deviation scores in response to friendly figures, but higher deviation scores in response to hostile ones. It is not known whether these differences were statistically significant for each figure, but as discussed in the next chapter, the interpersonal styles of the patients were significantly less friendly than those of the students. This stylistic difference probably accounts for the discrepancies in the deviation scores as well, especially since the deviations were based on the median instead of the mean. Thus, when compared with the students, the patients were less likely to be exceptionally affiliative with the friendly figures and more likely to be notably antagonistic with the hostile ones.

Response variability on the power dimension. Finally, Hypothesis 2.d, which predicted dominant figures would elicit more between participants variability than submissive ones, was also supported. This study, as far as this investigator is aware of, represents only the second occasion on which this relationship was examined. The first (Raush, 1965; Raush, Dittmann, & Taylor, 1959b) also resulted in similar effects.

Despite this, the main effect was insignificant in all three overall analyses, and one of the three planned comparisons also failed to reach statistical significance. Furthermore, an examination of the corresponding figure means (Table 29) failed to indicate a consistent pattern, especially since the order of the means changed considerably from the patients to the students. Consequently, there are serious doubts about the robustness of

this relationship. It may also be determined, at least in part, not by dominance per se, but by the tendency for hostile figures, especially hostile dominant ones, to elicit more variability than friendly ones.

CHAPTER 12

ACCURACY IN INTERPERSONAL PERCEPTION

Hypothesis 3

3. There will be a systematic relationship between preferred interpersonal style and ability to recognize other interpersonal styles.

The Coding of Preferred Interpersonal Style

As noted in Chapter 7, the interpersonal styles of the stimulus figures were fairly evenly distributed around the circumplex and appeared to be relatively equal in intensity. Since each participant was essentially responding to a balanced set of stimuli, his "preferred" interpersonal style, or the central tendency of his manifest interpersonal behavior, could be defined as the mean of his responses to all of the stimulus figures. The preferred interpersonal style score, therefore, was calculated as the mean of one's eight interpersonal behavior scores (Chapter 10). Each participant received two such scores, one for the affiliative dimension and one for power.

The Measurement of Perceptual Accuracy

The perceptual accuracy scores were derived from the interpersonal perception scores (IPS) (Chapter 10). Ideally, when the distributions were standardized to the same mean and variance, each participant's interpersonal perception scores would be identical to the corresponding actual coordinates for each of the stimulus figures. Since the squared

product-moment correlation coefficient is essentially a measure of the degree of correspondence between two standardized distributions, it constituted a possible measure of perceptual accuracy.

For example, a participant's eight interpersonal perception scores on affiliation could be correlated with the respective actual affiliation coordinates, resulting in a product-moment correlation coefficient for each participant. The square of this coefficient--representing the percentage of variance shared in common--would indicate perceptual accuracy along the affiliative dimension. Likewise, each participant's interpersonal perception scores on power could be correlated with the corresponding actual power coordinates. The squared correlation coefficient would again indicate perceptual accuracy, but with respect to the power dimension.

Unfortunately, these procedures had two major disadvantages. First, two correlation coefficients would have to be calculated for each participant; and second, as discussed more fully below, the squared product-moment correlation is not the most sensitive measure of accuracy. To reduce both of these problems, a modified technique was derived from the computational equation for the squared product-moment correlation (Hays, 1973, p. 632):

(25)

$$r_{PA}^2 = \frac{\left[\sum_{j=1}^{j=8} (\underline{IPS}_j)(\underline{A}_j) - \left(\sum_{j=1}^{j=8} \underline{IPS}_j \right) \left(\sum_{j=1}^{j=8} \underline{A}_j \right) \right]^2}{\left[\left(\sum_{j=1}^{j=8} \underline{IPS}_j^2 \right) - \left(\sum_{j=1}^{j=8} \underline{IPS}_j \right)^2 \right] \left[\left(\sum_{j=1}^{j=8} \underline{A}_j^2 \right) - \left(\sum_{j=1}^{j=8} \underline{A}_j \right)^2 \right]}$$

where: $\underline{IPS_j}$ = the participant's interpersonal perception score in response to Figure \underline{j} ,

$\underline{A_j}$ = the actual coordinate for Figure \underline{j} ,

\underline{f} = the number of figures = 8.

Since \underline{f} and the variance of $\underline{A_j}$ were the same for all participants, these terms were eliminated from the equation, resulting in:

$$\text{Modified } r_{PA}^2 = \frac{\left[\sum_{j=1}^{j=8} (\underline{IPS_j})(\underline{A_j}) - \left(\sum_{j=1}^{j=8} \underline{IPS_j} \right) \left(\sum_{j=1}^{j=8} \underline{A_j} \right) \right]^2}{\left(\sum_{j=1}^{j=8} \underline{IPS_j}^2 \right) - \left(\sum_{j=1}^{j=8} \underline{IPS_j} \right)^2} \quad (26)$$

Since $\Sigma \underline{A_j} = 0$, this equation was further reduced to:

$$\text{Modified } r_{PA}^2 = \frac{\left[\sum_{j=1}^{j=8} (\underline{IPS_j})(\underline{A_j}) \right]^2}{\left(\sum_{j=1}^{j=8} \underline{IPS_j}^2 \right) - \left(\sum_{j=1}^{j=8} \underline{IPS_j} \right)^2} \quad (27)$$

This last equation provided an index of the degree of association between the perceptual means and the actual coordinates. But as a measure of accuracy, there were still two problems. First, it failed to control for consistent, uniform biases in perception. Ideally, a maximum accuracy score would be obtained only when the $\Sigma \underline{IPS_j}$, like the $\Sigma \underline{A_j}$, equaled zero.

A nonzero $\Sigma \underline{\text{IPS}}_{\underline{j}}$ would be a clear indication of perceptual bias, but since it appeared in the denominator, it would actually increase the value of Modified r_{PA}^2 . This problem was avoided by eliminating $(\Sigma \underline{\text{IPS}}_{\underline{j}})^2$ from the equation.

The second problem was that since the covariate term was squared, the equation failed to discriminate between positive and negative correlations. Clearly, however, any positive correlation between the interpersonal perception scores and the actual coordinates was associated with more perceptual accuracy than even a very strong negative correlation. Hence, instead of being squared, the covariate term was multiplied by its absolute value. This resulted in a negative value whenever $\underline{\text{IPS}}$ and \underline{A} were negatively correlated, and a positive value whenever they were positively correlated.

Consequently, the final equation, used to compute each participant's perceptual accuracy score with respect to a given dimension, was:

$$\text{Accuracy} = \frac{\left[\sum_{\underline{j}=1}^{\underline{j}=8} (\underline{\text{IPS}}_{\underline{j}})(\underline{A}_{\underline{j}}) \right] \left[\left| \sum_{\underline{j}=1}^{\underline{j}=8} (\underline{\text{IPS}}_{\underline{j}})(\underline{A}_{\underline{j}}) \right| \right]}{\sum_{\underline{j}=1}^{\underline{j}=8} \underline{\text{IPS}}_{\underline{j}}^2} \quad (28)$$

Statistical Procedures

Hypothesis 3 was tested with product-moment correlations between perceptual accuracy and preferred interpersonal style (McNemar, 1969). Each dimension was analyzed separately.

Hypotheses 3.a and 3.b

3.a) Increased friendliness in preferred interpersonal style will be associated with increased accuracy in perception with regard to the affiliative dimension.

3.b) Increased dominance in preferred interpersonal style will be associated with increased accuracy in perception with regard to the power dimension.

Predictions. The product-moment correlations between the accuracy and preferred interpersonal style scores for each dimension were expected to be positive and statistically significant.

Results. Table 33 presents the intercorrelation matrix for interpersonal behavior toward each of the stimulus figures. The correlations for the affiliative dimension can be found above the main diagonal and those for the power dimension below it. The margins also contain the correlations between responses to the respective figures and the preferred interpersonal style scores. All of the correlations were positive, and all but two were significant at the .05 level or beyond. Consequently, there was every reason to believe the construct of preferred interpersonal style was a valid one, and furthermore, that the preferred interpersonal style scores were valid measures of it. (This does not necessarily mean, of course, that these scores would be valid measures of behavior outside the context of this study.)

Since these results were encouraging, the preferred interpersonal style scores were then correlated with the respective accuracy scores. The correlations, .09 on affiliation and -.10 on power, were not significantly different from zero. Similar analyses were performed separately for each sample. As before, these analyses were identical to the principle

Table 33

Hypothesis 3: Intercorrelation Matrix for the
Interpersonal Behavior Scores
of All Participants

Affiliative dimension									
Figure	1	2	3	4	5	6	7	8	<u>A</u> ^a
1		.41	.37	.47	.28	.34	.14	.33	.60
2	.52		.51	.53	.25	.52	.11	.40	.68
3	.49	.60		.50	.21	.41	.17	.14	.57
4	.45	.47	.50		.22	.52	.28	.45	.73
5	.46	.57	.59	.50		.41	.21	.32	.59
6	.38	.59	.63	.50	.62		.37	.49	.78
7	.29	.40	.44	.38	.36	.43		.45	.56
8	.49	.65	.57	.48	.53	.55	.50		.73
<u>p</u> ^b	.67	.80	.80	.70	.76	.78	.66	.81	
Power dimension									

Note. Intercorrelations for the affiliative dimension are above the main diagonal. Those for the power dimension are below the main diagonal. All correlations $\geq .22$ are significant at the .05 level or beyond.

^aA = preferred interpersonal style score on affiliation.

^bp = preferred interpersonal style score on power.

one, except the means and standard deviations used to transform each coder's ratings were based solely on his ratings of the participants within that sample. The correlations for the power dimension increased to $-.04$ for students and $-.05$ for patients, which made them even less significantly different from zero. The affiliative correlation was $.26$ for students and $-.20$ for patients, but again, both these figures were insignificant. The hypothesis was not supported.

Discussion

The absolute lack of support for Hypothesis 3 seemed rather surprising, especially given the pattern of results reported so far. Consequently, a series of post-hoc analyses were undertaken in an effort to further understand the underlying relationships.

Perceptual accuracy and preferred interpersonal style. To begin with, the within sample correlations for affiliation, $.26$ for students and $-.20$ for patients, suggested the possibility of either an interaction or a curvilinear relationship. Graphing the scores for both dimensions suggested the possibility of a weak, quadratic curvilinear relationship. The preferred interpersonal style scores and the square of these scores were then entered into a multiple regression equation to predict accuracy. (The procedures are outlined in Kerlinger & Pedhazur, 1973, pp. 222-226.) Since it is difficult to decrease a multiple correlation coefficient with the addition of more independent variables, the curvilinear regression coefficients were naturally larger than the linear ones. The resulting squared coefficients were $.012$ for affiliation and $.026$ for power. Neither was significantly different from zero.

Accuracy, style, and sample membership. But it was also noted, as

presented in Table 34, that sample membership was significantly correlated with perceptual accuracy on both dimensions and with preferred interpersonal style on affiliation. These correlations indicated the students were friendlier and in general more accurate than the patients.

In addition, the participant's age was negatively correlated with friendliness and perceptual accuracy on both dimensions. It was positively correlated with preferred styles of dominance. Since the patient sample was considerably older than the student one, these patterns were believed to be a function of other relevant differences between the two samples rather than posing meaningful relationships in and of themselves. However, even in the within patients analysis, older participants were less accurate on affiliation and more dominant in behavior than younger ones. The reason for these relationships is not known at this time, although the investigator suspects dominance is learned and tends to increase with age. These relationships were not significant in the student sample, perhaps because their ages were too homogeneous.

Based on the information reported in Chapter 9, it can be assumed--at least tentatively--that sample membership was an indicator of overall adjustment, and that the patients as a group were more maladjusted than the students. If this hypothesis is correct, then the results obtained here indicate affiliative behavior is not correlated with affiliative accuracy, but both are independently related to psychological adjustment. In addition, the perceptual accuracy of power would also be associated with adjustment.

This speculation must be kept tentative because the two samples differed on every demographic variable examined. This included even those variables which are probably not associated with overall adjustment, such

Table 34

Hypothesis 3: Correlation Coefficients for the
Perceptual Accuracy and Preferred
Interpersonal Style Scores

Correlate	Affiliation		Power	
	Perceptual accuracy	Preferred interpersonal style	Perceptual accuracy	Preferred interpersonal style
All participants ($n = 77$)				
Affiliative accuracy	1.00	.09	.44**	-.18
Affiliative style	.09	1.00	.21	.04
Power accuracy	.44**	.21	1.00	-.10
Power style	-.18	.04	-.10	1.00
Age	-.48**	-.24*	-.49**	.27*
Sample ^a	-.39*	-.34*	-.59**	.12
Within student sample ($n = 44$)				
Affiliative accuracy	1.00	.26	.30*	-.04
Affiliative style	.26	1.00	.05	.33*
Power accuracy	.30*	.05	1.00	-.04
Power style	-.04	.33*	-.04	1.00
Age	.05	-.00	-.16	-.00

Table 34--Continued

Correlate	Affiliation		Power	
	Perceptual accuracy	Preferred interpersonal style	Perceptual accuracy	Preferred interpersonal style
Within patient sample ($n = 33$)				
Affiliative accuracy	1.00	-.20	.27	-.23
Affiliative style	-.20	1.00	.00	-.20
Power accuracy	.27	.00	1.00	-.05
Power style	-.23	-.20	-.05	1.00
Age	-.36*	.13	.03	.47*

^aNegative correlations indicate the patients scored lower than the students. Positive correlations indicate the patients scored higher than the students.

* $p < .05$.

** $p < .0001$.

as age or military experience. To test this hypothesis adequately, one would have to correlate the adjustment indices with the behavioral and perceptual accuracy measures for each sample separately. Unfortunately, there were no indices of adjustment for the participants in the student sample. There were no overall measures of adjustment in the patient sample either, although a large amount of data had been collected for variables associated with adjustment. Even so, most of these variables were categorical in nature and many of the categories contained only a few cases. Consequently, these relationships were not examined here. They are suggested as a fruitful area for future investigations.

The current analysis, meanwhile, was pursued in a somewhat different direction. To begin with, the scores on perceptual accuracy and preferred interpersonal style were divided as closely as possible to their respective medians. The cutoff values were 3.25 for affiliative accuracy, 2.60 for power accuracy, .025 for affiliative behavior, and .033 for power behavior. Additional distributional characteristics of these variables can be found in Table 35.

Fourfold tables were then constructed for each dimension. The percentage of each sample that was classified into each category was subsequently calculated, as shown in Table 36. Additional chi-square analyses were not performed, since they would have been redundant with the already significant product-moment correlations. As shown in Table 36, only 9% of the patients scored high on both affiliative accuracy and affiliative behavior, in contrast to 38% of the students. Of the patients, 64% were rated low on affiliative style while 56% of the students were rated high. With regard to affiliative accuracy, 64% of the patients were again rated low, while 58% of the students scored high.

Table 35
Accuracy and Preferred Interpersonal Style
Means and Standard Deviations

Measure	<u>n</u>	Affiliative dimension		Power dimension	
		Mean	Standard deviation	Mean	Standard deviation
All participants					
Accuracy	77	3.052	.690	2.369	.870
Interpersonal style	77	0	.519	0	.719
Within students					
Accuracy	44	3.285	.410	2.808	.455
Interpersonal style	44	0	.469	0	.701
Within patients					
Accuracy	33	2.741	.855	1.783	.949
Interpersonal style	33	0	.543	0	.752

Table 36
Fourfold Contingency Tables for Perceptual
Accuracy and Interpersonal Style

<u>Affiliative Dimension</u>		Preferred interpersonal style	
		Low	High
Perceptual accuracy	High	9 students (20%)	17 students (38%)
		9 patients (27%)	3 patients (9%)
	Low	10 students (24%)	8 students (18%)
		12 patients (37%)	9 patients (27%)
<u>Power Dimension</u>		Preferred interpersonal style	
		Low	High
Perceptual accuracy	High	17 students (38%)	14 students (32%)
		4 patients (12%)	4 patients (12%)
	Low	6 students (14%)	7 students (16%)
		11 patients (33%)	14 patients (43%)

Note. The percentages refer to the percentage of each sample that was classified into each cell.

The cutoff values for the affiliative dimension were 3.25 on perceptual accuracy and .025 on preferred interpersonal style. Those for the power dimension were 2.60 for perceptual accuracy and .033 for preferred interpersonal style.

On the power dimension, high accuracy combined with high power characterized 32% of the students but only 12% of the patients. Fifty-two percent of the students were low on power, as were 45% of the patients. The power accuracy variable resulted in the most striking differences--70% of the students were high while 76% of the patients were low.

For the most part, the sample differences in perceptual accuracy and affiliativeness were consistent with the theory and research reviewed in Chapter 4 (e.g., Carson, 1969, 1975, 1979, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Kannarkat & Bayton, 1979; Leary, 1957; Leary & Coffey, 1955; McLemore & Benjamin, 1979; Millon, 1969; Raush, 1965; Raush, Dittmann, & Taylor, 1959b; Walker, Marwit, & Emory, 1980). Maladjusted persons were predicted to be less accurate and more hostile than normals, and these differences were obtained. Adjustment was also expected to be positively correlated with power--a difference which was not observed here. However, given the presumed relationship between interpersonal style and psychiatric diagnosis, the results of comparisons between normals and maladjusted individuals would depend mainly upon the characteristics of the maladjusted sample. Thus, if normals were compared with schizophrenics, one would expect significant differences with respect to both hostility and submission. Persons with hostile dominant personality disorders would differ from well adjusted normals in terms of hostility but not dominance. Friendly submissive neurotics would differ in terms of dominance-submission but not friendliness. What is most striking about the differences obtained here, however, is that the patients and students differed in their perceptual accuracy on two dimensions, but their behavior differed on only one. This pattern suggests interpersonal style and perceptual accuracy are not as closely associated as Carson's (1979) theory predicted,

and that adjustment functions as a critical intervening variable.

Accuracy, style, and psychiatric diagnosis. The patients' current diagnoses were subsequently examined to discover whether there were any relationships between diagnosis, perceptual accuracy, and preferred interpersonal style. In contrast to the general characterization of schizophrenics as hostile submissive (e.g., Carson, 1969, 1975, 1979; DeVoge, 1980; DeVoge & Beck, 1978; Leary, 1957; MeLemore & Benjamin, 1979; Millon, 1969), five of the eight schizophrenics, including two of the four paranoid schizophrenics, scored above the study median on affiliation. Although these schizophrenics may represent a relatively select or even inaccurately diagnosed sample, these results suggest schizophrenia and hostility may not be invariably linked, at least not in the superficial interactions of patients maintained on medication. Indeed, another comparison study by Tolor, Kelly, and Stebbins (1976) found schizophrenics offered considerably more altruistic assistance to an injured person than did college students. In line with Walker, Marwit, and Emory's (1980) results, however, three-quarters of the schizophrenics were below the study median on affiliative accuracy.

Some interesting results were also obtained with respect to depression. At the time the study was conducted, all of the 13 patients with affective disorders were depressed. As predicted, 11 of them, including the 8 patients with reactive depression, were below the median on affiliative behavior. In line with Hoehn-Hyde, Schlottmann and Rush's (1982) work, these eleven were evenly divided with respect to perceptual accuracy on affiliation. The remaining two were diagnosed as bipolar manic-depressive; they were above the median on friendliness and below it on accuracy.

Contrary to theoretical predictions, the majority of the depressed patients (9 out of 13) were above the median on power. A small study by Lemaire and Clopton (1981), however, seems to be relevant to this issue. They examined the relationship between depression and inward and outward directed hostility. The depressives in their study were only mildly depressed, none were in treatment, and all were identified on the basis of MMPI scores. All participants completed the Zung Depression Scale and spoke into a tape recorder for two minutes on a weekly basis for six weeks. They were asked to describe anything interesting about their experiences and their comments were later coded for the amount of hostility directed inward and outward. Depressives were significantly higher than controls on both types of hostility, but the two types of hostility were negatively correlated with one another. If we assume inward directed hostility is related to submissiveness and outward directed hostility to dominance, these results would also indicate depressed persons, especially mildly depressed ones, are not homogeneously submissive. Since the patients in the current study were generally tested toward the end of their hospital stay, it is quite probable that many of them were only mildly depressed at the time.

The case numbers in the remaining diagnostic categories were too small to pursue potential relationships. There were no other consistent patterns with respect to the power dimension.

Accuracy, style, and actual perceptions. The final set of analyses concerned the interrelationships between perceptual accuracy, preferred interpersonal style, and one's actual perceptions. As before, the total sample of participants was divided into four groups on the basis of median splits on perceptual accuracy and preferred interpersonal style. These

categories were constructed for each dimension separately.

On the affiliative dimension, the eight stimulus figures were evenly divided according to whether they were hostile or friendly. Mean ratings for each type of figure were then calculated separately for each of the four groups of participants, as shown in Table 37. The overall mean square for subjects within groups by type of figure was .9119. Newman-Keuls post-hoc comparisons were then used to test for significant differences (Keppel, 1973, pp. 136-137 and 139-143). Contrary to the predictions of Carson's (1979) theory, the principle distinctions occurred in the ratings of the hostile figures rather than the friendly ones. Compared to the accurate ones, the low-accuracy perceivers underestimated hostility. The highly affiliative participants in this group underestimated it even more than the less affiliative ones.

For the power dimension, the figures were then evenly divided according to whether they were dominant or submissive. The means for each type of figure were again calculated separately for each group of participants (Table 37). The mean square for subjects within groups by type of figure was 1.0410. As shown in Table 37, the principle pattern was one in which inaccurate participants displayed less differentiation between dominant and submissive figures than accurate ones. As can be demonstrated with Newman-Keuls post-hoc comparisons, they rated the submissive figures significantly higher on power and the dominant figures significantly lower than did the more accurate participants. Within each of the two levels of accuracy, the high-power participants, as predicted by Carson's (1979) theory, did not differ from the low-power participants in their ratings of the dominant figures. Despite this, the high-power participants rated the submissive figures as significantly

Table 37
 Perceptual Means for Types of Figures as a Function
 of Accuracy and Interpersonal Style

Affiliative dimension						
Preferred interpersonal style						
Perceptual accuracy	Low			High		
	<u>n</u>	Hostile figures	Friendly figures	<u>n</u>	Hostile figures	Friendly figures
High	18	-1.76 ^a	1.90 ^b	20	-1.69 ^a	1.71 ^c
Low	22	-1.04	1.67 ^c	17	-.72	1.80 ^{bc}
Power dimension						
Preferred interpersonal style						
Perceptual accuracy	Low			High		
	<u>n</u>	Submissive figures	Dominant figures	<u>n</u>	Submissive figures	Dominant figures
High	21	-1.12	1.39 ^a	18	-1.43	1.25 ^a
Low	17	-.66	.60 ^b	21	-.96	.61 ^b

Note. Using the Newman-Keuls procedure, means with the same superscript were not significantly different from one another. Comparisons were not made across different types of figures. The overall mean square for subjects within groups by type of figure was .9119 for the affiliative dimension and 1.0410 for the power one.

The cutoff values for the affiliative dimension were 3.25 on perceptual accuracy and .025 on preferred interpersonal style. Those on the power dimension were 2.60 for perceptual accuracy and .033 for preferred interpersonal style.

more submissive than the low-power ones.

Summary. Hypothesis 3 was not supported as stated. Perceptual accuracy was not related to preferred interpersonal style. The relationships did suggest, however, that perceptual accuracy on both dimensions and preferred interpersonal style on affiliation were all related to psychological adjustment. In general, maladjusted persons appeared to be less accurate perceivers and less affiliative in their interpersonal behavior than normals. In particular, depressed people were likely to be rated low on affiliation, although schizophrenics were not. These provocative relationships must be treated very cautiously, however, because they may be confounded with the demographic differences between the two samples.

With regard to errors of perception, it was discovered that inaccurate perceivers on the affiliative dimension tended to underestimate hostility, especially if they were also affiliative in their own interpersonal style. On the power dimension, inaccurate perceivers, as a group, showed less differentiation between the dominant and submissive figures than accurate ones. Within each level of accuracy, there were no significant differences in the perception of dominant figures, but high-power perceivers rated the submissive figures more submissively than low-power ones.

CHAPTER 13

ANTICIPATIONS FOR FUTURE INTERACTIONS

Hypothesis 4

4. There will be a systematic relationship between preferred interpersonal style and anticipations regarding future interactions. People will anticipate better interactions when the other engages in reciprocal behavior than when the other engages in nonreciprocal behavior.

The Measurement of Anticipations

The semantic differentials for each stimulus figure were followed by the question "Suppose you and _____ continued to see and interact with each other. How well do you think you would get along?" Beneath this question was a seven-point bipolar scale, similar in format to the others, ranging from "extremely poorly" (-3) to "extremely well" (+3). This scale measured anticipations. Since there were eight figures, eight ratings were obtained from each participant.

There were, however, two sets of anticipation scores. The first, referred to as unstandardized anticipations, consisted of the actual ratings themselves. These scores were sensitive not only to differences in a given participant's ratings of the eight figures, but also to differences between participants in their mean level of expectations for all of the figures. Within-participants variance was thus confounded with between-participants variance. Even though a given rating could be very high with respect to the remainder of that participant's ratings,

it could be low with respect to the anticipations held by other participants. The greater the variability between the participants in their overall use of the anticipation scale, the less sensitive these analyses would be to the changes within participants as they associated with different figures.

Consequently, another measure of anticipations was also examined for possible interrelationships with preferred interpersonal style. This measure was constructed by standardizing each participant's eight ratings to the z distribution on the basis of his own anticipation mean and standard deviation. This second set of scores, referred to as standardized anticipations, was naturally insensitive to mean differences between participants. Instead, it reflected the pattern of variability within participants, or how much and in what direction their ratings changed as they moved from figure to figure.

Statistical Procedures

The hypothesis was tested with multiple correlations in which anticipations were treated as the independent variables and preferred interpersonal style scores (Chapter 12) as the dependent variable. These analyses indicated the degree of association, but not the direction of causality, which must be theoretically inferred.

Hypothesis 4.a

4.a) When the behavior of the other is basically friendly, friendly persons (as measured by the preferred interpersonal style scores) will anticipate better interactions than hostile ones will.

Predictions. The independent variables were the four anticipation scores in response to the friendly figures, while the dependent variable

was preferred interpersonal style on affiliation. The multiple correlation coefficients were expected to be positive and significant, indicating friendly figures elicit more positive anticipations when the preferred style is also friendly.

Results. The analysis of unstandardized scores from all participants resulted in an obviously insignificant squared multiple correlation coefficient of .01 (Table 38). Separate analyses for the student and patient samples, in which the transformations of the coders' ratings of behavior were based solely upon the means and standard deviations of the participants in that sample, also resulted in insignificant correlations. The squared multiple correlation coefficients were .07 for students and .10 for patients. The analyses with standardized anticipation scores also produced essentially the same results.

Hypothesis 4.b

4.b) When the behavior of the other is basically hostile, hostile persons (as measured by the preferred interpersonal style scores) will anticipate better interactions than friendly ones will.

Predictions. Here, the independent variables consisted of the four anticipation scores in response to the hostile figures, while the dependent variable was again preferred interpersonal style with respect to affiliation. The coefficients were expected to be negative and significant, indicating hostile figures elicit more positive anticipations when the preferred style is also hostile.

Results. As before, six analyses were performed and the results were essentially the same for both types of anticipation scores. The squared multiple correlation coefficients for the all participants and

Table 38

Hypothesis 4: Squared Multiple Correlation
Coefficients Between Interpersonal Style
and Relationship Anticipations

Affiliative dimension				
Sample	Friendly figures		Hostile figures	
	Unstandardized anticipations	Standardized anticipations	Unstandardized anticipations	Standardized anticipations
All participants	.01	.01	.08	.07
Within students	.07	.04	.04	.06
Within patients	.10	.07	.38*	.32*
Power dimension				
Sample	Dominant figures		Submissive figures	
	Unstandardized anticipations	Standardized anticipations	Unstandardized anticipations	Standardized anticipations
All participants	.13*	.10	.14*	.18*
Within students	.09	.10	.12	.19
Within patients	.18	.13	.16	.17

* $p < .05$.

within students analyses were not significantly different from zero (Table 38). The within patients analyses, however, resulted in significant squared correlation coefficients of .38 for unstandardized anticipations and .32 for standardized ones.

The product-moment correlations between the affiliative preferred interpersonal style scores and anticipations of each figure are shown in Table 39. When it was consulted to verify the underlying relationships for the within patients analyses, it was discovered the relationships were not as predicted. In both cases, the anticipations of Figures 5 and 8 were positively correlated with preferred interpersonal style. This indicated it was the friendly participants, not the hostile ones, who had the most positive anticipations regarding these figures. On the other hand, the affiliative patients did lower their anticipations significantly more than the unaffiliative ones when confronted with Figure 7.

Consequently, there was no support for Hypothesis 4.b in any of the all participants or within students analyses. It was reversed in the within patients analysis for unstandardized expectations and was not substantiated one way or the other in the within patients analysis of standardized anticipations.

Hypothesis 4.c

4.c) When the behavior of the other is basically dominant, submissive persons (as measured by the preferred interpersonal style scores) will anticipate better interactions than dominant ones will.

Predictions. Anticipations in response to the four dominant figures constituted the independent variables. The dependent variable was preferred interpersonal style with regard to power. Significant negative

Table 39

Hypotheses 4.a and 4.b: Product-Moment Correlations
Between Affiliative Interpersonal Style and
Anticipations of Specific Figures

Anticipations	Figure							
	1	2	3	4	5	6	7	8
All participants								
Unstandardized	.07	.02	.10	.09	.23*	.13	.07	.22*
Standardized	-.02	-.07	-.00	-.01	.19	-.03	-.23*	.12
Within students								
Unstandardized	-.12	-.23	-.09	-.15	-.15	.06	.04	.09
Standardized	-.05	-.14	-.14	-.04	-.09	.16	.04	.12
Within patients								
Unstandardized	.19	.18	.24	.24	.55*	.26	.08	.47*
Standardized	-.06	-.11	-.20	-.06	.42*	-.05	-.39*	.36*

Note. Figures 1, 2, 3, and 4 were friendly. Figures 5, 6, 7, and 8 were hostile.

* $p < .05$.

correlations were predicted, indicating dominant figures elicit more positive anticipations when the preferred style is submissive.

Results. Of the six analyses performed (Table 38), only one revealed a statistically significant relationship. That was the all participants analysis with unstandardized expectations, which resulted in a squared multiple correlation coefficient of .13. An examination of the corresponding product-moment correlations in Table 40 indicated this relationship was in fact in the predicted direction. However, only one of the four product-moment correlations was statistically significant (Figure 2, $r = -.24$) and another was in the opposite direction (Figure 8, $r = .15$). Consequently, the hypothesis was only weakly supported.

Hypothesis 4.d

4.d) When the behavior of the other is basically submissive, dominant persons (as measured by the preferred interpersonal style scores) will anticipate better interactions than submissive ones will.

Predictions. The independent variables were anticipations of interactions with submissive figures, while the dependent variable was preferred interpersonal style on power. Significant positive relationships were expected, indicating submissive figures elicit more positive anticipations when the preferred style is dominant.

Results. The within students and patients analyses (Table 38) resulted in insignificant correlations, but significant relationships were obtained for both of the analyses involving all participants. The squared multiple correlation coefficients were .14 for unstandardized anticipations and .18 for standardized ones. None of the underlying product-moment correlations (Table 40) for standardized anticipations were significant,

Table 40

Hypotheses 4.c and 4.d: Product-Moment Correlations
Between Interpersonal Style on Power and
Anticipations of Specific Figures

Anticipations	Figure							
	1	2	3	4	5	6	7	8
All participants								
Unstandardized	-.21	-.24*	.03	-.02	-.18	.20	-.06	.15
Standardized	-.21	-.19	.15	.02	-.18	.30*	.00	.20
Within students								
Unstandardized	-.16	-.24	.03	-.04	-.16	.21	-.08	.09
Standardized	-.15	-.17	.24	-.01	-.15	.35*	-.12	.13
Within patients								
Unstandardized	-.26	-.24	.06	.03	-.16	.19	-.05	.17
Standardized	-.27	-.20	.10	.11	-.19	.24	.06	.20

Note. Figures 1, 2, 7, and 8 were dominant. Figures 3, 4, 5, and 6 were submissive.

* $p < .05$.

and contrary to predictions, two were negative. The correlations involving standardized anticipations were somewhat better, although one was negative and only one was statistically significant. Given the low magnitude of the squared multiple correlations, the absence of replication in the within patients and within students analyses, and the consistent negative correlation with Figure 5, the support for this hypothesis was not especially strong.

Discussion

The statistical analyses produced very mixed results, and at best, Hypothesis 4 was only weakly supported. The use of standardized or unstandardized anticipation scores did not substantially affect the final outcome.

The strongest relationship was the tendency for affiliative patients to anticipate more positive relationships with Figures 5 and 8 than unaffiliative ones. This does not mean the affiliative patients had positive anticipations; their anticipations were in fact negative but less so. They were apparently more tolerant of the depression of Figure 5 and the cocky bravado of Figure 8 than their less affiliative counterparts. Although definitive reasons for these patterns can not be given, there was a marked tendency for these patients to treat these figures as if they were fellow patients in need of psychological help. They were less impatient and more concerned.

But in general, anticipations were not related to the reciprocity of the other person's interpersonal style. This still raises the question of what does influence them. Fortunately, the subsequent analyses did provide definitive answers.

Anticipations and affiliation. To begin with, anticipation means and standard deviations were calculated separately for each sample's ratings of each figure (Tables 41 and 42). The patients were more variable than the students, and except for Figures 6 and 8, their mean anticipations were also consistently lower. In general, however, the patterns were similar for both groups.

The total sample was then classified into four categories based on median splits of the preferred interpersonal style scores for both dimensions. The friendly dominant quadrant included 18 participants, 13 were students and 5 were patients. There were 19 friendly submissives, of whom 12 were students and 7 were patients. Hostile dominants included 8 students and 13 patients for a total of 21. Finally, 11 students and 8 patients, or a total of 19, were classified as hostile submissive.

The anticipation means and standard deviations for each figure were then computed separately for each preferred interpersonal style (Tables 43 and 44). With one exception, the hostile dominants had consistently lower expectations than the friendly dominants. Compared to friendly submissives, hostile submissives had higher expectations of the figures perceived as friendly dominant (Figures 1, 2, and 3,) and lower anticipations of the others. These patterns were obviously inconsistent with the original hypotheses and provided some insight as to why they were not confirmed.

But the most striking relationships concerned the pattern of means within each group. Regardless of the participant sample or interpersonal style, the patterns were in fact identical. The anticipations were positive for friendly figures and negative for hostile ones.

The mean anticipations of each figure were subsequently correlated

Table 41

Unstandardized Anticipation Means and Standard
Deviations for Each Sample

Figure	All participants		Students		Patients	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	.68	1.53	.77	1.29	.55	1.82
2	1.36	1.40	1.43	1.23	1.27	1.63
3	1.99	.95	2.05	.86	1.91	1.07
4	.48	1.45	.57	1.26	.36	1.67
5	-.79	1.51	-.77	1.27	-.82	1.79
6	-1.49	1.29	-1.61	1.02	-1.33	1.59
7	-2.58	.77	-2.57	.73	-2.61	.83
8	-2.00	1.34	-2.25	.78	-1.67	1.80

Table 42
Standardized Anticipation Means and Standard
Deviations for Each Sample

Figure	All participants		Students		Patients	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	.46	.62	.52	.52	.38	.73
2	.82	.55	.87	.50	.74	.62
3	1.15	.46	1.21	.38	1.08	.54
4	.39	.56	.44	.58	.32	.53
5	-.26	.55	-.25	.49	-.28	.64
6	-.55	.52	-.64	.39	-.44	.64
7	-1.16	.41	-1.16	.24	-1.16	.57
8	-.85	.52	-.99	.32	-.66	.66

Table 43

Unstandardized Anticipation Means and Standard
Deviations for Each Preferred
Interpersonal Style

Figure	Friendly dominant (<u>n</u> = 18)		Friendly submissive (<u>n</u> = 19)		Hostile dominant (<u>n</u> = 21)		Hostile submissive (<u>n</u> = 19)	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	.72	1.67	.58	1.22	.10	1.76	1.37	1.21
2	1.39	1.20	1.32	1.38	.95	1.75	1.84	1.12
3	2.22	.73	1.84	.96	1.81	1.08	2.11	.99
4	.39	1.75	1.11	1.10	.29	1.59	.61	1.17
5	-.61	1.20	-.11	1.66	-1.43	1.21	-.95	1.68
6	-1.17	1.15	-1.26	1.52	-1.62	1.40	-1.90	.99
7	-2.61	.78	-2.37	.90	-2.81	.68	-2.53	.70
8	-1.33	1.61	-2.00	1.33	-2.38	1.34	-2.21	.79

Table 44

Standardized Anticipation Means and Standard
Deviations for Each Preferred
Interpersonal Style

Figure	Friendly dominant (<u>n</u> = 18)		Friendly submissive (<u>n</u> = 19)		Hostile dominant (<u>n</u> = 21)		Hostile submissive (<u>n</u> = 19)	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
1	.41	.70	.35	.58	.31	.68	.77	.39
2	.83	.40	.68	.67	.77	.61	1.00	.47
3	1.25	.41	1.00	.53	1.22	.47	1.16	.38
4	.26	.63	.61	.46	.48	.59	.20	.49
5	-.26	.47	-.01	.62	-.41	.51	-.35	.56
6	-.51	.41	-.54	.68	-.43	.52	-.74	.38
7	-1.33	.42	-1.17	.37	-1.07	.54	-1.08	.24
8	-.67	.54	-.92	.66	-.86	.51	-.94	.33

with the actual coordinates for each dimension. Separate coefficients were calculated for each sample and for each of the four interpersonal styles. The lowest affiliative coefficient (Table 45) was .928, all but two were greater or equal to .951, and the highest was .961. They were significant at well beyond the .01 level. The power coefficients, on the other hand, were uniformly insignificant and never ranged beyond an absolute value of .169.

Thus, despite the differences in demography and interpersonal style, the anticipations of all participants were systematically related to the friendliness of the figures. From the standpoint of the participants, of course, the critical variable was not really the figures' interpersonal styles as perceived by the experts, but the styles as perceived by themselves. To check this, the affiliative perception means for all participants were correlated with their mean anticipations. The resulting coefficients were even higher than those involving the actual affiliation coordinates. They were .989 for unstandardized anticipations and .987 for standardized ones.

Integration with the previous research. These results are naturally difficult to explain in terms of the theories and empirical evidence discussed in Chapter 5. On the surface, the results of this study were not consistent with the process of self-confirmation. Participants did not prefer reciprocal interactants, what they preferred were friendly ones.

On the other hand, instead of disconfirming the theory, these results may simply indicate the self-confirmatory process is actually more complicated than was initially anticipated. To begin with, the results of this study may not have been especially different; instead, it could have been the analysis which set them apart from previous ones. The

Table 45

Product-Moment Correlations Between Mean Anticipations
for Each Figure and the Actual Stimulus
Figure Coordinates

Subsample	n	Affiliative dimension		Power dimension	
		Unstandardized anticipations	Standardized anticipations	Unstandardized anticipations	Standardized anticipations
All participants	77	.961*	.959*	.033	.021
Students	44	.958*	.958*	.022	.011
Patients	33	.960*	.954*	.052	.037
Friendly dominants	18	.951*	.950*	.071	.055
Friendly submissives	19	.959*	.955*	.134	-.136
Hostile dominants	21	.957*	.953*	.005	-.015
Hostile submissives	19	.930*	.928*	.169	.166

* $p < .01$ with 6 degrees of freedom, two-tailed test.

hypothesis confirmation studies (e.g., Bond, 1972; S. C. Jones & Panitch, 1971; M. Snyder & Swann, 1978a, 1978b; M. Snyder, Tanke, & Berscheid, 1977), for example, manipulated anticipations and examined subsequent behavior. In general, at least for males, the behavior matched the anticipations. Their participants were less friendly when they believed the other disliked them, or was hostile or unattractive. Although this study did not measure anticipations until after the interactions, similar relationships were obtained: the participants were hostile when their anticipations were negative and friendly when they were positive.

The remaining studies (Chapter 5) were principally concerned with differences between groups, in which well adjusted persons were compared with poorly adjusted ones, dominant participants with dependent ones, and so forth. In general, meaningful group differences were obtained. As indicated in Tables 41 through 44, consistent and meaningful differences were also obtained here, although their statistical significance was not tested. Thus, the mean anticipations of patients were lower than those of students; hostile dominant participants had lower anticipations than friendly dominant ones. What differentiated this study from previous ones was the fact that anticipations were solicited with respect to more than one target. And when that was done, the differences between participants were greatly overshadowed by those between targets.

Obviously, a major factor in this was the extremity of the figures' interpersonal styles, which may have allowed situational differences to overpower person and interactional ones. The use of less extreme figures might have resulted in crossover effects like those reported by Assor, Aronoff & Messé (1981), Edquist (1973), and E. E. Jones (1954). On the other hand, there are other differences which distinguish these three

studies from the current one, and previous researchers may have missed some rather important processes by failing to expose each of their participants to more than one target.

A third critical difference between previous studies and the current one can be found in the measurement of interpersonal style. With the exception of the hypothesis confirmation studies, the previous work reviewed here has almost universally relied on paper and pencil questionnaires, while this study used behavioral ratings. It is entirely possible that people do not really seek to confirm their actual behavior. Instead, the critical factor may be their own perception of that behavior, which is what the previous studies actually measured. This distinction becomes even more plausible in light of the more recent distinctions between verbal and nonverbal interpersonal styles (e.g., Chrzanowski, 1982; Duke & Nowicki, 1982; Kiesler, 1982b), and the evidence suggesting people do not necessarily have a great deal of insight into their own interpersonal styles (e.g., Duke & Nowicki, 1982). Indeed, although they were not questioned specifically about this issue, the current author doubts that anyone who participated in this study perceived themselves as especially hostile, although many might have admitted to being hostile under particular situational circumstances. Furthermore, when people do not perceive themselves as hostile, friendly behavior is self-confirming.

The studies by Wetzel and Insko (1982) also seem to be relevant to this issue. They noted that although the previous social attraction research indicated people were most strongly attracted to others who were similar to themselves, this relationship was generally more consistent for attitudes than for traits. They speculated this was because people generally harbor what they feel are ideal attitudes, but not

necessarily ideal traits. Hence, their hypothesis was that although people may be attracted to others who are similar to themselves, they are even more attracted to those who match their ideal self-images. Using bogus feedback on contentless personality dimensions (which were supposedly derived from applying multidimensional scaling techniques to the participants' self- and ideal self-ratings on a variety of bipolar dimensions), they confirmed their hypothesis in a series of six different studies.

In addition, Leary (1957) noted Responsible-Hypernormal behavior, which corresponded to the perceptions of Figures 2 and 3 in this study, was the cultural ideal. By referring to Tables 41 through 44, we can again see that it was these two figures which consistently elicited the most positive anticipations. This raises the possibility that although people may vary in their perception of their own behavior, these self-perceptions are not necessarily related to how they are perceived by others. In particular, people may be apt to overestimate their own friendliness and would consequently perceive friendliness in others as self-confirming. This would be further enhanced by the fact that the friendliness would constitute even greater confirmation of their ideal self-images.

The process of self-confirmation is not well understood, however, and in light of the results obtained here, the topic does warrant further investigation. At present, there is no way of knowing whether these results would be replicated with the use of less stylistically intense stimulus figures. Questioning people about specific aspects of their anticipations, instead of employing the global ratings used here, will undoubtedly result in a more differentiated perspective of what people actually see in one another. It is possible that in this study, for

example, the participants interpreted this scale as a measure of liking instead of seriously thinking about how the other would feel toward them. Furthermore, as noted in Chapter 5, people may also have a variety of needs which they fulfill in a variety of different relationships.

Beyond that, it would be interesting to know exactly how self-perceptions of interpersonal style relate to ratings obtained from others. Do people seek to confirm their real self-images or their ideal ones? And is the whole process a simple matter of anticipations based on previous experiences, or is it mediated by anxiety? These are difficult questions; they will not have simple answers.

CHAPTER 14

FINAL DISCUSSION AND SUMMARY

The Challenge: Persons, Situations, Interpersonal Relations, and Beyond

Clinicians have long accepted the challenge of understanding, preventing, and treating human psychopathology. But they have not always handled that challenge very well, and even today, the current practice of psychotherapy is unsystematic, inconsistently effective, and poorly understood (e.g., Anchin & Kiesler, 1982; Benjamin, 1979a, 1979b; Carson, 1969, 1975, 1982; DeVoge, 1980; DeVoge & Beck, 1978). Furthermore, psychotherapy will undoubtedly fail to progress beyond its current levels without a more thorough understanding of the determinants of interpersonal behavior. The research conducted here was designed specifically to enhance our understanding of these basic determinants, with the goal of eventually applying this knowledge to the prevention and relief of interpersonal problems.

This much we do know: psychopathology is an interpersonal problem, a problem of disordered communication and disordered relationships (e.g., Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Carson, 1969, 1975, 1979, 1982; Cashdan, 1973, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Dewald, 1969; Kiesler, 1979, 1982a, 1982b; Leary, 1957; McLemore & Benjamin, 1979; Millon, 1969; Sullivan, 1953, 1954/1970; Wachtel, 1973, 1982). It is manifested both as distortions in perceptions and difficulties in behavior. It is often very difficult to change, and very

painful to live with.

Interpersonal theorists, such as those cited above, have always emphasized the primary importance of perceptions and behaviors in understanding interpersonal relations. Since they continue to be poorly understood, the current project began here. A review of the relevant research, conducted shortly after the recent person-situation controversy, indicated persons and situations, particularly in combination, exerted enormous influences on behavior (e.g., Alker, 1972; Argyle & Little, 1972; Bowers, 1973, 1977; Carson, 1975, 1979; DeVoge & Beck, 1978; Ekehammar, 1974; Endler, 1973; Endler & Hunt, 1969; Endler & Magnusson, 1976; Golding, 1975a, 1975b, 1977; Mariotto, 1978; Mischel, 1973; Moos, 1968; Raush, 1965; Raush, Dittmann, & Taylor, 1959b; Sarason, Smith, & Diener, 1975; Wachtel, 1973). Since recent theorists, like their theoretically minded predecessors, believed idiosyncratic behavior followed rather directly from idiosyncratic perceptions of the environment (e.g., Benjamin, 1974; Bowers, 1973; Carson, 1975, 1979; DeVoge & Beck, 1978; Ekehammar, 1974; Endler & Magnusson, 1976; Golding, 1975b, 1977; Mischel, 1973, 1977, 1979; Olweus, 1977; M. Solomon, 1981; Sullivan, 1953), it seemed reasonable to assume persons and situations, in combination, exerted substantial effects on perception as well. Perception was thus regarded as an intrapersonal process through which the effects of person and situational factors were coded, organized, and made available for behavioral expression. Beyond that, and beyond the scope of this dissertation, the links between perceptions, behaviors, and person and situational variables were each assumed to be reciprocal in nature (e.g., Bandura, 1978). Although stated differently by different authors (Bandura, 1978; Bowers, 1977; A. R. Buss, 1977; Nygård, 1981; Olweus, 1977), this view was consistent with other

recent conceptualizations.

More recently, the relevant research has been concentrated on a few specific issues. The first is understanding the process of perception, or how information is accumulated, organized, and evaluated. Cognitive prototypes (e.g., Cantor & Mischel, 1977; Snyder & Cantor, 1980) and script concepts (Abelson, 1981) are now used to describe the basic human tendency to organize information in terms of commonly shared characteristics, and to differentiate on the basis of information which is inconsistent with these broad categorical representations. The process is very efficient in that a few central characteristics will often activate the entire prototype or script, thus allowing the perceiver to complete the information she or he has already obtained. This gap filling phenomenon is performed on the basis of previous experiences, is influenced by affect (Bower, 1981; Zajonc, 1980), and is thus subject to the influence of person variables.

Interpersonal perceptions are also processed in this manner (Abelson, 1981; Brewer, Dull & Lui, 1980; D. M. Buss & Craik, 1981; Cantor & Mischel, 1977; Carson, 1982; Horowitz, French, Lapid, & Weckler, 1982; M. Snyder & Cantor, 1980). In particular, the power and affiliative dimensions, which have emerged in study after study, seem to represent fundamental boundaries crossing the domain of interpersonal behavior (e.g., Becker & Krug, 1964; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Foa, 1961, 1964; Leary, 1957; McLemore & Benjamin, 1979; Triandis, 1978; Wish, 1976; Wish, D'Andrade, & Goodnow, 1980; Wish, Deutsch, & Kaplan, 1976). The four quadrant styles thus seem to function as superordinate prototypes with the interpersonal styles themselves, Leary's (1957) for example, representing lower levels of prototypical interpersonal behavior.

Preliminary evidence suggests there are also predictable behavioral sequences, scripts in fact, associated with each prototypical style (e.g., Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b; Carson, 1969, 1975, 1979, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Heller, Myers & Kline, 1963; Kronberg, 1975; Kiesler, 1979; Leary, 1957; McLemore & Benjamin, 1979; Mueller, 1969; Shannon & Guernsey, 1973).

Thus, the investigation of prototypes and scripts, as noted by Carson (1982) and Horowitz et. al. (1982), holds considerable promise for interpersonal theory. However, the reverse is also true. In all likelihood, individual differences in prototypes and scripts will be discovered--indeed, they already have (M. Snyder & Cantor, 1980). Different people probably acquire different sets of prototypes and scripts, the cognitive maps of some may be more complex and detailed than those of others. Prototype and script theory alone are insufficiently developed to predict many such variations or their corresponding interrelationships. Interpersonal theory is--they were explored in this study.

The second major issue involves differentiating, with respect to certain traits or behaviors, those people who exhibit cross-situational consistency from those who do not. Self-ratings of consistency have been found to be surprisingly useful in this area, either in the form of the Self-Monitoring Scale (M. Snyder, 1974; M. Snyder & Cantor, 1980) or in the form of consistency ratings with respect to the trait itself (Bem & Allen, 1974; Kenrick & Stringfield, 1980; Markus, 1977). Some of the more speculative work has been aimed at trying to understand the basis of this inconsistency-consistency. In particular, it has been proposed inconsistency in behavior arises from the organism's efforts to preserve consistency in internal states and perceptions (Atkinson, 1981; Powers, 1973).

This line of research also has implications for interpersonal theory. As with traits, people vary in the situational consistency of their interpersonal behavior (Leary, 1957). The reasons are still poorly understood, although behavioral rigidity is correlated with psychopathology (e.g., Alker, 1972; Argyle & Little, 1972; Ekehammar, 1974; Endler, 1973; Endler & Hunt, 1969; Leary, 1957; Mariotto, 1978; McLemore & Benjamin, 1979; Millon, 1969; Mischel, 1973; Moos, 1968; Raush, 1965; Raush, Dittmann, & Taylor, 1959a, 1959b). Since interpersonal style is also correlated with psychopathology (Carson, 1969, 1975, 1979, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Leary, 1957; Leary & Coffey, 1955; McLemore & Benjamin, 1979; Millon, 1969), Carson (1979) proposed some styles, through their effects on others, elicit more homogeneous experiences for the persons exhibiting them. Greater behavioral consistency could thus follow from increased perceptual consistency, which in turn would be based on more limited social experiences.

But there are those who believe interpersonal behavior, regardless of its consistency, is also oriented toward the preservation of consistent self-perceptions (e.g., Anchin, 1982b; Carson, 1969, 1975, 1979, 1982; Cashdan, 1973, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Sullivan, 1953, 1954/1970; Young & Beier, 1982). This has naturally led to the emphasis on self-confirmatory feedback, both as a fundamental reinforcer and as a primary means of avoiding anxiety. Furthermore, these clinicians believe adjustment is related to dramatic differences in the type of feedback preferred. The most challenging and difficult task of psychotherapy is often noted to be one of altering the client's initial feedback preferences. Only then, they argue, will the clients be sufficiently motivated to make the necessary changes in their attitudes and behaviors.

Another major research trend consists of contrasting the perceptions and behaviors of well adjusted and maladjusted individuals. This trend is really more apparent in the clinical area than the personality one, and has been less affected by the person-situation controversy. It's relevance to the current topic is clear, especially in the absence of more systematic investigations of the theory itself. However, in contrast to more traditional psychodiagnostic systems--including DSM-III (American Psychiatric Association, 1980)--the interpersonal system extends to normal behavior as well as pathology, is more internally consistent, can be coded on an act-by-act basis, and has many other advantages (Adams, 1964; McLemore & Benjamin, 1979). It is suggested, therefore, that researchers in this area be more attentive to interpersonal style, particularly as a means of achieving better methodological control over their subject populations and procedures.

Methodological Implications of the Recent Research

The person-situation controversy and the subsequent research also held methodological implications for the current study. In general, the use of well adjusted, homogeneous populations--college students in particular--had been found to enhance situational effects; while heterogeneous, maladjusted individuals--psychiatric inpatients, for example--resulted in large person effects (e.g., Alker, 1972; Argyle & Little, 1972; Bowers, 1973; Cronbach, 1957; Ekehammar, 1974; Endler & Magnusson, 1976; Epstein, 1977, 1979; Mischel, 1973; Olweus, 1977). Results obtained from one sample were thus not necessarily applicable to the other, but by using both students and patients, a fairly accurate assessment of the generalizability of the outcome could be obtained. Furthermore, a combined

sample would further increase the heterogeneity of the participants. That, combined with heterogeneous situations, would enhance person by situation interactions. This was certainly desirable in the current study, as the primary interest was in examining their outcomes, namely perception and behavior.

Another important methodological technique was the use of aggregation (Epstein, 1977, 1979, 1980; Harris, 1980; McGowan & Gormly, 1976; Moskowitz & Schwarz, 1982; Wallach & Leggett, 1972). Within a situation, it had been used successfully to reduce error variance and enhance stability. Further, there was evidence that the use of only one situation may be inadequate for inferring global tendencies. A more effective strategy would consist of repeated observations over a number of situations, preferably heterogeneous ones. Both types of aggregation were incorporated into the work presented here.

The Affiliative and Power Dimensions: Implications for Research

As noted previously, the affiliative and power dimensions have emerged in study after study and essentially define the domain of interpersonal behavior. Although they are obviously not the only interpersonal dimensions, the evidence suggests they are definitely two of the most important ones.

Nevertheless, controversies do exist. Stiles (1980) has questioned whether the dimensions actually describe behavior, since the vast majority of the research was based on global ratings of personality characteristics, personal relationships, stereotypic roles, and so forth, rather than actual behavior. It can be argued the dimensions reveal more about the perceptions of the researchers than about the participants. Recent

evidence suggests the so-called "universal" dimensions (Triandis, 1978) are not in fact universal to all individuals, but only to groups of people (Golding, 1975b, 1977; Kim & Rosenberg, 1980). Finally, there have been doubts as to whether these dimensions reflect actual human behavior, or just human perceptions of it (Block, Weiss, & Thorne, 1979; Lyons et. al., 1980; Passini & Norman, 1966; Shweder & D'Andrade, 1979; Stiles, 1980).

At present, the research into these issues is quite scanty and they all deserve further exploration. But recent evidence suggests the dimensions do in fact describe actual interpersonal behavior (Wish, D'Andrade, & Goodnow, 1980). Investigations where participants select their own stimuli have apparently not been done, but the dimensions continue to emerge even when participants use their own criteria in evaluating the designated others (Horowitz, 1979; Horowitz & Post, 1980; Isenberg & Ennis, 1981; Wish, Deutsch, & Kaplan, 1976). Despite the presence of individual differences in the construal of the affiliative and power dimensions, Kim and Rosenberg (1980) found a common "evaluative" (i.e., positive-negative) factor in the ratings of all of their participants. Preliminary evidence also suggests these individual differences are meaningfully related to variations in interpersonal style (Golding, 1975b, 1977). As a result, as shown by Carson (1979), they are easily incorporated into interpersonal theory.

The last issue is more problematic, since interpersonal behavior does not currently have a separate existence from interpersonal perception and can not be assessed without using human perceivers. The best that can be done is to examine these perceptions for their consensual validity. For the purposes of this study, consensually validated perceptions were

assumed to be situationally determined, while idiosyncratic ones were assumed to originate in the individual perceiver. The possibility exists, however, that much of what is considered to be situationally determined here will eventually be found to be culturally or genetically determined.

But despite these questions as to how far the affiliative and power dimensions can be generalized to, their usefulness in interpersonal research is unquestionable. Between them, they represent a relatively comprehensive taxonomy of interpersonal behavior, at least in peer relationships. Even if they do not emerge spontaneously in the ratings of all individuals, they do emerge at the group level (Kim & Rosenberg, 1980) and individuals do not seem to experience difficulty in applying them. Indeed, most of the research has involved exactly this sort of application.

But, as noted by Leary (1957), McLemore and Benjamin (1979), Adams (1964), and many others (e.g., Anchin & Kiesler, 1982), the real usefulness of the interpersonal dimensions is in their internal consistency and their broad range of applicability. Unlike psychiatric diagnoses, they do not rely on a somewhat tenuous disease model and encompass normal behavior as well as psychopathology. Furthermore, since psychopathology is primarily diagnosed and treated in terms of disordered interpersonal relations, it seems more consistent, as also noted by these authors, to categorize it in terms of an interpersonal model instead of a medical one.

Beyond that, the interpersonal dimensions can be applied to perceptions and situations (Kiesler, 1982b) as well as behaviors; to covert actions as well as overt ones; and even to dreams, fantasies, and hallucinations (e.g., Benjamin, 1982; Leary, 1957). They are easily operationalized and extend the entire range from very global ratings of

overall interpersonal style to coding on an act-by-act basis. They are useful for describing sequential interactions, consistently result in acceptable levels of interrater reliability (e.g., Billings, 1979; Heller, Myers, & Kline, 1963; Kronberg, 1975; Mueller, 1969; Shannon & Guernsey, 1973), and can be used to test empirical hypotheses. They can also be extended beyond interpersonal style to include additional aspects of behavior, such as its intensity, variability, or flexibility (e.g., Leary, 1957; Lyons, Hirschberg, & Wilkinson, 1980). The affiliative and power dimensions, along with the interpersonal circumplex they define, also form the basis of a promising, empirically based model of systematic interpersonal diagnosis and psychotherapy (e.g., Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Carson, 1969, 1975, 1979, 1982; Cashdan, 1973, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Leary, 1957; McLemore & Benjamin, 1979; Millon, 1969).

Consequently, the affiliative and power dimensions were incorporated into the current study for both theoretical and methodological reasons. And while this project can not resolve any of the controversies noted earlier, it can attest to the usefulness of these dimensions in investigating interpersonal perception and behavior. They were used to describe the stimuli the participants interacted with, their perception of those stimuli, the behaviors elicited by the stimuli, and overall interpersonal style. Although they were typically stronger for the affiliative dimension than for the power one, the results were consistent from level to level, and it was possible to compare different levels with one another. There was good interrater agreement, both between the expert judges who evaluated the stimuli and the raters who coded the participants' responses. Even naive participants showed consistent patterns in their

use of these dimensions at the individual level.

Review of the Current Study

Of the interpersonal theories reviewed here, Carson's (1969, 1975, 1979, 1982) was more specific than most in terms of the predictions he made regarding the complex interrelationships between perceptions, behaviors, perceptual accuracy, and preferences regarding the nature of self-confirmatory feedback. The goal of this project was to test some of these predictions with an empirical investigation.

Ideally, the participants in this study would have conversed with real people in a real-world setting. Such a project, however, was well beyond the resources of the investigator. Instead, audio tapes were constructed, where each tape represented one side of a conversation with a male stimulus figure. The participants were instructed to imagine themselves at a picnic where they conversed with each of these figures in turn.

As the reader might recall, the stimulus figures portrayed prototypical interpersonal styles. They were based on Leary's (1957) octants and each style represented a certain level of affiliation combined with a specific level of power. Other aspects of these tapes, such as the conversational content, the amount of time devoted to each topic, the setting, the number of statements, the number of words, and the figure's age, sex, social status, and role vis-à-vis the participant were all carefully controlled from tape to tape.

Criterion ratings of the quadrant styles were obtained from eight clinical psychologists and doctoral candidates. There was complete agreement on the practice tape and five other tapes. On the remaining

three tapes, there was complete agreement on one dimension while ratings on the other dimension ranged from 62.5% agreement to 87.5%.

Systematic procedures were then developed for converting the experts' ratings into Cartesian coordinates. Preliminary evidence indicated these procedures were reasonably valid, since the results closely matched the perceptual means of the student sample. The resulting correlation coefficients were .969 for affiliation and .979 for power, despite the use of completely different samples and rating procedures.

The 77 participants, all males, consisted of 44 college undergraduates at the University of Cincinnati and 33 psychiatric inpatients at the Cincinnati Veterans Administration Medical Center. Although these samples were selected primarily on the basis of their availability to the investigator and their assumed difference in overall psychological adjustment, they also differed on every other demographic variable for which information had been obtained. In general, the patient sample was also more heterogeneous than the student one.

Thus, the mean age of the students was 19.43 years with a range of 18 to 26. The mean patient age was 34.39 years with a range of 22 to 57. Almost sixty percent of the students were college freshmen. Some of the patients, however, had never attended high school, while others had graduated from college. Over ninety percent of the students were single; almost seventy percent of the patients were separated or divorced. All patients, but only two students, had served in the Armed Forces.

Additional data, which was available for the patients but not the students, provided even further evidence of their overall maladjustment. Two-thirds of the patients had a history of two or more previous psychiatric hospital admissions. All but one had received psychiatric

diagnoses--27.2% were schizophrenic or psychotic while 39.4% were classified as having affective disorders. Almost eighty percent of the patient sample was currently considered disabled or unemployed. Over half had a history of alcohol abuse; over a third had abused drugs; over thirty percent had made at least one suicide attempt in the past. Almost a quarter were known to have been legally arrested or convicted.

It was also noted, however, that the patients' mean age at the time of their first psychiatric hospital admission was 27.04 years, which made them older, even then, than any of the students in this study. Furthermore, almost forty percent of the patients had psychiatric disabilities which were considered to be directly related to their previous military service. It is conceivable therefore, that the premilitary adjustment of the patients was not substantially different from that of the students, although a definitive answer to this question can not be given.

Each participant was tested on an individual basis. He was asked to imagine himself at a picnic, and some details of the experimental scene were provided. The participant also supplied some of his own details through his answers to a series of structured questions. He then conversed with a practice tape followed by the eight stimulus tapes in a counterbalanced random order which varied from participant to participant. Following each conversation, which was recorded on audio tape, the participant rated his perceptions of the figure on a series of bipolar semantic differentials. The differentials were selected to be equally high in meaningfulness, with four scales describing the affiliative dimension and four referring to power. The participants were also asked how well they would get along with the stimulus figure if their interactions were to continue.

The twelve responses from one participant in reply to one stimulus figure were referred to as a set of data. The sets from all participants were then copied onto a series of master tapes in a counterbalanced random order. Stimulus statements were carefully eliminated from these tapes, leaving only the participants' replies. The master tapes were then submitted to three experienced coders, who evaluated each response in terms of the affiliative and power dimensions. In doing so, the coders were blind as to the stimulus figure responded to, the participant's status as a student or patient, and the remainder of the participant's responses. Furthermore, the proportion of sets corresponding to each figure, and from patients and students, were also equivalent for each coder. Interrater reliability estimates were based on actual data, which was identical for all three coders, but the coders did not know which sets they were based on. In actuality, the estimates were derived from data near the beginning and the end of each coder's work.

The twelve ratings in each set were then averaged to form the set means. Each coder's set means were subsequently standardized separately to correct for coder-specific means and variances, and to make the ratings obtained from different coders comparable to one another. Although higher for the affiliative dimension than for the power one, the resulting intraclass correlation coefficients were reasonably consistent from the beginning to the end of the study, and from students to patients. The overall coefficients were .722 for affiliation and .483 for power. Since these generalizability coefficients represented the proportion of variance shared in common, these agreement levels were regarded as quite acceptable.

The first hypothesis concerned the direct relationship between

perception and behavior. Similarity was predicted for the affiliative dimension, in which perceptions of friendliness would be associated with behavioral responses of friendliness, and perceptions of hostility would be associated with behavioral hostility. The predicted relationship for the power dimension was one of complementarity. When the other was perceived as dominant, the behavior was expected to be submissive; when the other was regarded as submissive, the behavior was expected to be dominant. This hypothesis was tested with intraclass correlations, in which the pattern of each participant's perceptual ratings was compared with his corresponding pattern of behavioral responses. The affiliative and power dimensions were each analyzed separately.

Evidence for generalized response biases was obtained for both dimensions. As predicted, participants with perceptual biases toward dominance exhibited behavioral biases in the direction of submission, resulting in an intraclass correlation of $-.263$ for all participants. On the affiliative dimension, however, there was an unexpected sample by style interaction, where the intraclass coefficient was $.401$ for patients but only $-.311$ for students. Friendly perceptual biases were thus associated with increased behavioral friendliness in the patients, but decreased affiliation in the students. Compared to the patients, the students were less biased toward perceptions of friendliness, but more biased toward behavioral friendliness, especially when their perceptions were unbiased.

At the level of responses to individual figures, the hypothesis was strongly supported for both dimensions. The intraclass correlation coefficients for all participants were $.501$ on affiliation and $-.172$ on power. Perceptions of the figures were closely related to the "actual"

Cartesian coordinates derived from the experts' ratings, as well as to the participants' behavioral means. Thus, the correlations between the perceptual means for each figure and the actual coordinates were .965 for the affiliative dimension and .957 for power. Those between the perceptual and behavioral means were .950 for affiliation and -.659 for power.

The second hypothesis made predictions about the responses elicited by different stimulus behaviors, rather than just the perceptions of those behaviors, which was examined under Hypothesis 1. There were four parts to this hypothesis; two dealt with mean responses tendencies and two focused on between-participants variability. As before, the predicted mean responses consisted of similarity for the affiliative dimension and complementarity in power. In addition, in comparison to hostility and submission, friendliness and dominance were expected to elicit more variable behavior. In other words, hostility would elicit hostility from almost everyone, but friendliness would elicit friendliness from some and hostility from others. Submission would consistently provoke dominance, but dominance would induce submission only in some. Each of the four portions was tested with a repeated-measures analysis of variance (in which the figures were repeated across participants) followed by a planned comparison in which the means for each figure were compared with the corresponding actual coordinates.

The hypothesis of reciprocity in interpersonal behavior was strongly supported. There was similarity on the affiliative dimension, in which the comparison r^2 was .771; and complementarity in power, with a corresponding r^2 of .425. Despite this, some deviations from the predicted relationships were also noted. In particular, extreme hostility combined with mild dominance consistently elicited counter hostile dominance. Mild

hostility combined with extreme submission elicited friendly dominance from students and hostile dominance from patients. The correlations between the actual coordinates and the behavior means were also noted to be strong; they were .878 on affiliation and -.652 on power. However, they were not as strong as those between perception and behavior, which implied that even though the perceptions were closely related to the actual stimulus figure coordinates, they still played a mediating role between the stimulus figures' behaviors and the participants' responses.

With regard to variability, the hypothesis for the affiliative dimension was reversed. It was the hostile figures, not the friendly ones, which produced the most variability in responses, with an associated comparison r^2 of .706. The comparison on the power dimension was also significant ($r^2 = .333$), but the main effects were not and the pattern of means was inconsistent. Consequently, the investigator had serious doubts about the robustness of this relationship.

The third hypothesis, taken from Carson's (1979) interpersonal theory, was concerned with the relationship between interpersonal style and accuracy in interpersonal perception. Friendly participants were expected to be more accurate with regard to the affiliative dimension than hostile ones; dominant participants were predicted to show greater accuracy in the perception of power than submissive ones. Accuracy was measured by comparing the perceptual ratings with the actual Cartesian coordinates derived earlier.

This hypothesis was not supported, but post-hoc analyses indicated affiliative behavior and perceptual accuracy on both dimensions were related to one's status as a patient or a student. This suggested friendliness in interpersonal style and perceptual accuracy in general

were both associated with overall psychological adjustment, but were not directly related to each other.

The final hypothesis was concerned with preferences for self-confirmatory feedback, or in other words, the interrelationship between one's own interpersonal style, the behavior of the other, and the anticipations one had regarding future interactions. Affiliativeness in interpersonal style was expected to be positively correlated with anticipations of friendly figures and negatively correlated with anticipations of hostile ones. Increased dominance in interpersonal style was expected to be positively associated with anticipations of submissive figures and negatively associated with anticipations of dominant figures.

At best, however, this hypothesis was only very weakly supported. The strongest covariate of one's anticipations was actually the friendliness of the stimulus figure, and this pattern was very consistent, regardless of the participant's interpersonal style or status as a patient or a student. In fact, the overall correlation between the mean (unstandardized) anticipations for each figure and the affiliative stimulus figure coordinates was a highly significant .961. The correlation with the power coordinates, on the other hand, was only .033. As before, the relationship between the participants' mean perceptions and responses was even greater than that involving the actual coordinates. Hence, the correlation between the affiliative perception means and the mean unstandardized anticipations was .989.

Theoretical Implications of the Current Study

Interpersonal theorists have always implied a meaningful relationship between perception and behavior. But their attention has typically

been focused on other related issues, such as patterns in behavior, perceptual accuracy, or self-confirmation. In this study, interpersonal behaviors were assumed to follow rather directly from their corresponding perceptions, both at the level of global response biases and with respect to the reactions elicited by specific stimulus figures. When friendliness was perceived, behavioral sociability was expected. Perceived hostility would be countered with hostility. Perceptions of dominance would be followed by submission, but when weakness was perceived, dominance would be enacted.

The methods applied here were correlational and consequently did not permit the inference of causality. But this extension of interpersonal theory with respect to one's reactions to specific individuals was strongly supported. It also extended to global reactions on the power dimension in both samples. On the affiliative dimension, however, these global patterns interacted with the participant's status as a student or a patient. This suggested overall psychological adjustment may play a mediating role in this relationship. The students were more sociable than the patients, but were especially friendly when their perceptions were unbiased. Among the patients, however, friendly perceptual biases, as predicted, were positively associated with a similar bias in behavior.

Further evidence of the role of perception as mediator between the environment and behavior was found in the interrelationships between perceptions, behaviors, anticipations, and the actual stimulus figure coordinates. Although the actual coordinates were strongly related to the mean behaviors and anticipations elicited by each figure, these relationships were even stronger when the overall perceptual means were substituted for the actual coordinates. Since these post-hoc analyses

were based on data aggregated across participants, this does not necessarily imply the same patterns would be universally obtained at the individual level. But they do provide a suggestive demonstration which can be further explored later. In particular, it would be interesting to know the limiting circumstances of the patterns observed here. When, for example, does the interrelationship between perception and behavior break down or even show a reversal? Such an exploration may also help explain why affiliative perceptual biases led the students to behave in one way and the patients in another.

Interpersonal theory, meanwhile, is based on the fundamental principles of similarity on affiliation and complementarity in power (e.g., Anchin & Kiesler, 1982; Benjamin, 1974, 1977, 1979a, 1979b, 1982; Carson, 1969, 1975, 1979, 1982; DeVoge, 1980; DeVoge & Beck, 1978; Leary, 1957; McLemore & Benjamin, 1979). These principles were solidly supported in the results of this study. Despite this, occasional discrepancies have been noted in the recent research literature, although due to the limited focus of these studies, these inconsistencies could not readily be explained. In particular, hostile submission has been observed to elicit friendly dominance, and hostile dominance is often countered with hostile dominance (e.g., Becker & Krug, 1964; Hokanson, Sacco, Blumberg & Landrum, 1980; Kronberg, 1975; Sebastian, Buttino, Burzynski & Moore, 1981; Shannon & Guernsey, 1973; M. Snyder & Swann, 1978a). In this study, both patterns were observed along with the predicted complementarity between hostile dominance and hostile submission. The critical factor appeared to be the level of hostility, and possibly the level of power as well. Mild hostility combined with extreme submission, as in depression, was likely to elicit supportive responses from normals, at least during the initial

stages of interaction. The persistence of this encouragement when confronted by the other's continued failure to improve, of course, was not addressed by this study. Moderate levels of hostility, as in bitterness or snobbery, did result in complementarity between hostile dominance and hostile submission. Bitter complaining seemed to elicit impatience; snobbery provoked grudging admiration or skeptical submission. Abusive, threatening, hostile dominance, on the other hand, was not tolerated, and in many cases the result was a showdown of counter hostile dominance.

The remaining hypotheses were derived from Carson's (1979) interpersonal theory. As he predicted, the psychiatric inpatients were less perceptually accurate and less friendly than normal college students. Contrary to his predictions, they were not more submissive, but as noted earlier, the submissiveness and hostility of maladjusted persons could be expected to vary considerably from sample to sample. In addition, the current investigator suspects dominance is a learned behavior which tends to increase with age, and in this study, the patients were considerably older than the students.

Since consulting rooms are frequented by hostile submissive persons with inaccurate perceptual skills, it is tempting to conclude, as Carson (1979) did, that the two processes are interrelated. As noted in Chapter 4, the previous research also suggested a similar conclusion. When compared with normals, maladjusted persons were more likely to be hostile, submissive, rigid, and to make errors in the perception of social stimuli. As far as this investigator knows, however, this is the first study which examined affiliation, power, adjustment, and perceptual accuracy simultaneously. And the results of this study, especially if they withstand the rigors of replication, suggest perceptual accuracy actually

functions as a third, independent dimension. Adjustment does appear to be correlated with style and accuracy, but style and accuracy were not correlated in and of themselves. In line with this conclusion, it should also be noted that while neither dimension showed a significant correlation between accuracy and interpersonal style, the affiliative and power accuracy scores were significantly correlated with one another ($r = .436$, $p < .0001$).

How could this happen? First of all, in contrast to Carson's theory, the hostile figures consistently elicited more variability than the friendly ones. The power dimension did conform to his prediction that dominant figures would elicit more variability, but this relationship was very inconsistent and highly questionable. This implies hostile persons are in fact exposed to a broader range of styles than friendly ones, and would have the opportunity to develop accuracy if they took advantage of it. Submissive persons would also partake of a wide variety of experiences. Consequently, adjustment may be less directly related to interpersonal style per se and more related to how one takes advantage of their interpersonal exposure. The task of psychotherapy thus appears to be one of correcting inaccurate perceiving as well as facilitating the development of different interpersonal styles.

Also in contrast to Carson's theory, the conscious preferences of the participants in this study were for friendly persons, not reciprocal ones. Although it could be argued that they said this only because it was the socially desirable thing to do, or that their unconscious desires actually lay elsewhere, the current investigator suspects these were actually honest and wholly desired preferences. For one thing, preferences for sociability in others can be easily explained; at the very least,

one's own survival is less threatened under those circumstances. The real problem comes in explaining how antagonistic interpersonal styles are maintained, even when, as demonstrated here, they elicit considerable hostility. This problem has also confronted aggression researchers, as indicated in the following passage by Olweus:

. . . the primary task confronting the researcher seems to be one of explaining the substantial stability or lack of change in aggressive behavior found to prevail in spite of considerable environmental variation and in opposition to a number of influences acting to change this same behavior.

The relative lack of change is all the more remarkable because highly aggressive behavior often leads to aversive consequences from the environment. Even if psychological and physical advantages can be gained by aggressive behavior in a number of situations, negative effects (such as punishment from the environment) often seem to be equally likely. It can also be argued that many aggressive behaviors, such as bullying or aggressive attacks in a free-play situation, are self-initiated behaviors . . . As previously pointed out, it is often difficult to explain the behavior of the highly aggressive individuals as a function of particular aversive conditions or strong situational pull in the immediate, proximal situation in which the aggressive behavior is displayed. In the studies surveyed, there is little evidence supporting a view that stable differences in aggression level are primarily a consequence of consistently different environmental conditions for different individuals in the nursery school, the elementary school and so on. Overall, the above results and analyses strongly suggest that the observed stability over time of aggressive reaction patterns is, to a considerable measure, determined by relatively stable, individual-differentiating reaction tendencies or motive systems within individuals. (1979, p. 872.)

However, the data here do provide some interesting clues.

First, let us recall that hostile figures consistently elicited more variability in behavior with respect to the affiliative dimension than friendly ones. Friendliness consistently elicited friendliness, and since all people prefer it, friendly individuals would naturally gravitate toward one another. This would leave the hostile persons, who would have the choice of developing relationships with one another or not at all.

Second, friendliness in our culture is highly valued; it is an important aspect of the Judeo-Christian heritage. People are admonished

to be polite, to be courteous, to turn the other cheek--even in the face of rudeness and hostility on the part of others. Consequently, hostile persons do experience friendliness. But they are not preferred as interaction partners, and judging from the content of the interactions in this study, the friendly strategy appeared to be one of politeness until one could negotiate an end to the interaction. Hostile persons, incidently, also acted to end their interactions with hostile others, and did so with considerably less expression of ambivalence.

But now let us consider the situation from the perspective of a hostile person. First of all, their behaviors are not universally antagonistic. They are just less friendly or express hostility just often enough to aggravate others and earn a bad reputation. Consequently, hostile persons do not necessarily perceive themselves as hostile, and would likely attribute much of their own hostility to situational difficulties. Furthermore, their hostility gives them, and Sullivan (1954/1970, p. 103) put it, "the curious feeling of power when one is angry." This is probably especially prominent in the maintenance of hostile dominance. In addition, hostility is reinforced, with friendliness, on a variable ratio schedule--which (as behaviorists know) is extremely resistant to extinction. This could play a critical role in the maintenance of all hostility, but could be especially important in depression. For depressed persons, being depressed may actually be more effective at eliciting tenderness than their relatively inept attempts at sociability. This intermittent reinforcement with friendliness could also sustain the process Sullivan referred to as the "malevolent transformation," in which "there is literally the substitution of malevolent . . . behavior when there is a need for tenderness" (1953, p. 202).

The hostile person's notorious distrust of others would also be augmented, not so much by constant abuse (although that could be a real possibility), but because even friendliness would be untrustworthy. While friendly persons could accept fellowship naturally, hostile persons would still have to test it out, especially if it was particularly obvious or congenial. Is this unexpected interest in them just transitory politeness, exploitative seduction, or is it genuine? This question would haunt them; in their experience, friendliness would be a potential indicator of future harm or abandonment. And for hostile persons, abandonment, particularly after they have become attached, may be extremely painful. Congenial people, by being preferred as interaction partners, would find it relatively easy to begin new relationships after old ones have failed. But hostile persons would not. Intimacy for them is a rare and dangerous thing. They will often prefer to avoid attachments, or, when the end is in sight, to gain the power of being the one to exercise rejection and inflict pain.

In other words, the results of this study seem to indicate hostile people can perceive friendliness, at least in the rather extreme forms utilized here, especially if they are not also severely maladjusted. They also prefer being treated with kindness. But while friendly people can accept this kindness naturally for what it is, hostile people cannot. For them, friendly gestures are less frequent, difficult to interpret, and can mean a variety of different things. What others often interpret as efforts on their part to arouse antagonism, therefore, may actually be attempts to test the genuineness of the other person's affection.

While these theoretical formulations are probably reasonably consistent with most of the previous work in this area, the results of this study

obviously have not yet withstood the rigors of replication and further exploration. And if future researchers do their job well, they will undoubtedly discover the real patterns are even more complex and interesting than those described here.

Methodological Implications of the Current Study

Interpersonal research is often difficult to perform, in part because of the formidable task of controlling the stimulus side of the interaction in order to examine the participant's response. Typically this is done through the use of live models, but the stylistic behavior of live models is frequently very difficult to control exactly, and their use requires a considerable amount of time and effort on the part of the investigating team. While audio-visual aids have frequently been used in the psychology laboratory for the presentation of stimulus figures or the recording of participant responses, they have seldom been employed as the basis of interaction. Even when, as in Kronberg's (1975) study, the participants did interact with a recording, there was no continuity and each interaction consisted of only one stimulus statement followed by one response.

In this study, audio tapes served the function typically performed by live models, only much more economically. It demonstrated that carefully designed audio tapes can be used very effectively in this manner. The participants did not seem to experience any special problems with this procedure, and typically reported their responses in this analogue situation were similar to those they would have made in real life.

Conceivably, the interactional possibilities of audio and video tapes are endless. They could be used to replicate the same study in widely different geographical locations. One could employ them as the

basis of a more behaviorally oriented test of interpersonal style, or as a measure of the social skills one might need to perform a certain job. Another application might be in the training of student psychotherapists, as a way of exposing them to a variety of different clients or common client maneuvers. Eventually, through the use of sophisticated computer technologies, it will be possible to develop a wide variety of possible scenarios for each interaction, with each depending upon how the participant responds to the various stimulus statements.

Despite this, the use of tapes does not replace real-world face-to-face interactions. At present, tapes can not respond to what the participant has just said. Conversations with recorded materials still lack the continuity of live discussions, and there is still a feeling of interpersonal distance. While the tapes utilized here, for example, aroused anger very effectively, they could not adequately express closeness or affection. In the words of one pilot participant, it had been an experience of "inaccurate empathy," even though in his case, he was conversing with a recording of himself.

In addition, audio-visual encounters do not relieve the investigator of the exacting responsibility of attending to the details of the stimulus situation. When tapes are used as the basis of interaction, these details in fact become more important because they can not be modified or changed to fit the needs of a particular participant. The range of possible responses to each stimulus statement must be carefully considered ahead of time, and pilot testing should be utilized as well. The quality of acting is critical, and care must be taken to avoid the widespread tendency to overdramatize mundane encounters.

Another methodological technique involved the use of criterion

ratings. When psychologists present stimulus materials to their research participants, they are naturally concerned about what these materials actually portray. Traditionally, especially if one is not collecting ratings from the participants themselves, criterion measures are solicited from a separate sample of judges. If these judges do not agree on the actual nature of the stimulus material, it is abandoned in favor of stimuli which do result in high levels of interrater agreement. Unfortunately, by the time a stimulus elicits such consistent opinions, it is heavily laden with salient situational cues. Many situations in real life are considerably more ambiguous than that, and in addition, this type of methodological approach enhances situational effects at the expense of individual differences or person-by-situation interactions. It is consequently difficult to discover or examine some of the more subtle perceptual and behavioral response biases. This may also explain why pre-existing biases are often ignored in favor of experimentally induced biases created through the purposeful use of misinformation.

In this case, the traditional approach was initially adopted in the collection of criterion ratings, but the result was quite different. Instead of using these ratings to establish the validity of a particular style, they were used to scale the interpersonal styles along the affiliative and power dimensions. They indicated when the stimulus behavior clearly matched the designated style, when it was ambiguous, and when it was somewhere in between. This allowed us to examine responses to the entire range of the relevant dimensions and not just to the extremes. It permitted individually specific response biases to emerge, and clarified some of the previously noted inconsistencies in the reactions elicited by hostility. These reactions were apparently dependent upon the level of

of hostility and not just its presence or absence.

Like the use of audio tapes, this modified approach to criterion ratings could have wide-ranging applications far beyond the limits of this study. Criterion ratings could be used to scale almost any set of stimuli along almost any dimension an investigator might wish to explore. Instead of being limited to a psychology in which phenomena seem to be characterized in terms of high versus low, this versus the opposite, or whatever versus whatever; it could eventually shift psychology from its current preoccupation with discrete phenomena into the serious exploration of continuous functions.

Finally, there are some additional methodological tools which were published too recently to be incorporated into this study, but which could prove to be invaluable to other researchers. One is Conte and Plutchik's (1981) circumplex of interpersonal traits, which now allows researchers to pick the traits which match the interpersonal styles of interest. This empirically based system would have resulted in more precise anchors for the bipolar semantic differentials.

In addition, the most difficult aspect of this project was the coding of the participants' interpersonal behaviors, especially on an act-by-act basis. In doing so, it rapidly became obvious that the nonverbal aspects of interpersonal style were frequently incongruent with the verbal ones, a phenomenon which is now beginning to be recognized in the interpersonal literature (e.g., Chrzanowski, 1982; Duke & Nowicki, 1982; Kiesler, 1982). As a result, others may find it easier to assign separate ratings to the verbal and nonverbal aspects, instead of constantly trying to synthesize them through subjective evaluations. The use of separate ratings may also produce some interesting patterns, and there is already

some theoretical speculation in this area.

Finally, as noted earlier, this investigator would attempt a more specific and differentiated inquiry of relationship anticipations.

Limitations of the Current Study

The limitations of this study will naturally depend upon the circumstances to which it is applied. The results obtained here will obviously extend to some situations and not others, and the differences are not necessarily predictable on the basis of our current knowledge and understanding.

It should be noted, however, that this study was limited to male participants, and that sex differences are very commonly reported in the interpersonal literature. The perceptions and behaviors of maladjusted persons, for theoretical reasons, could also be expected to vary considerably from sample to sample. And even within the current sample of psychiatric inpatients, there were substantial individual variations.

In the research presented here, the participant's status as a college student or psychiatric inpatient was assumed to be correlated with overall psychological adjustment. There were, however, no measures of overall adjustment. Information on adjustment-related variables was available for the patients, but since it was not available for the students, no direct comparisons could be made. Furthermore, the patients and students did not represent matched samples and in fact differed on every demographic variable for which information was obtained. Consequently, the resulting sample differences could have been a function of some other variable, age in particular, rather than adjustment per se. Even within the patient sample, for example, age was negatively correlated with

affiliative perceptual accuracy and positively associated with behavioral dominance.

Beyond that, the interactions were role-played analogues and not face-to-face encounters in a natural environment. The participants knew their own responses were being recorded and evaluated. They could not see the figures they interacted with, nor could their own behavior affect those figures in any way. Situations in which one discusses exactly the same material with nine consecutive people do not generally occur in real life.

In addition, the stimulus tapes also consisted of role-played analogues rather than actual conversational behavior. They portrayed rather extreme versions of each style, and the use of less stylistically intense material might have produced considerably different results. The encounters were invariably limited to only the first few minutes; the later stages of relationship were not explored. The focus was further restricted to dyadic interactions between equal-aged males in a specific social context. A different social environment, or the presence of females, senior citizens, or children could significantly alter the corresponding norms of interpersonal perception and behavior.

The treatment of the data could also place limits on the generalizability of this study. Interpersonal perceptions were only noted on rating scales provided by the experimenter, and only after the participant had already responded to the stimulus figure. The coders who evaluated the participants' responses were all males, they had to rely entirely on audio cues, and they were not permitted to hear both sides of the interactions. The various measures of stimulus behavior, participant behavior, interpersonal perception, perceptual accuracy, preferred interpersonal

style, and relationship anticipations were all assumed to be valid measures of the underlying constructs, but these assumptions have never been tested empirically. Finally, the statistical analyses were oriented toward exploring some relationships and not others.

All of these factors, and many more, could limit the extension of the patterns observed here. In short, this investigation can provide suggestive ideas but not definitive conclusions. It is but one clue in unraveling an immensely complicated mystery which goes far beyond this project or any of the work presented here. The challenge of understanding and facilitating interpersonal relations, the process of experimentation and discovery, they are just as real as ever.

PART IV

APPENDICES AND REFERENCES

APPENDIX A

PRELIMINARY INSTRUCTIONS, TAPE TRANSCRIPTS, SAMPLE QUESTIONNAIRE, AND CONSENT FORMS

Preliminary Instructions

Each person is different. They each have their own appearance, fingerprints, signature, and personality. They even have their own way of talking and moving. These differences lead us to treat different people in different ways. For example, our impression of someone who is talkative and active is not the same as our impression of someone who is quiet and still. We like some people but avoid others.

In this research project, we are trying to understand how some of these differences affect the way other people feel and behave. We are particularly interested in conversations, like the conversations between people who are not yet close friends. To help us with this, you will hear some tape recordings of various people talking. You will be asked to talk with these people, as if you were actually having a conversation with them. Your own responses will be taped on a tape recorder, and then you'll fill out that short questionnaire telling us what you think of that person. By doing this, we hope to better understand how each of the eight men you'll be talking with affects other people. Obviously, there are no right or wrong answers, since we are still trying to find out what effects each of these men have. In any case, anything you say or write will be kept strictly confidential. Only the researchers working on this study will

know what you did, and I'm the only one who would even know your name.

Do you have any questions?

(Experimenter answers questions.)

OK, before we begin, I'd just like you to relax and make yourself comfortable. I'd like you to imagine you are going to a group picnic, and that following this picnic, there will be a softball game in which you are the pitcher for your team. You are bringing some beer to share with the people there. However, you are arriving later than you planned, and by the time you get there, the picnic is already well under way. There are hamburgers cooking, drinks and food are already being served, and the area is full of people. Before the game, you will be talking with eight different guys. Assume these men are all about the same age you are. Pretend they are all people you know, people you have talked with in the past. They are on your team and you have played softball with them before. However, you don't know any of them very well, and so far, none of them are close friends of yours.

As I indicated earlier, you will hear short tapes of each of these people talking to you. Your job will be to respond to them as naturally as you can. In so doing, please try to avoid one- or two-word responses. Instead, use complete sentences and complete explanations whenever possible. But don't try to respond in any particular way. Just be yourself. Say what you would normally say. And then at the end of each conversation, you will be asked to indicate your impression of the person on that short questionnaire.

Do you have any questions?

(Experimenter answers questions.)

OK, since you're not actually at the picnic right now, you will have

to use your imagination to supply many of the details you will be talking about. So before we begin, I am going to ask you some questions. These questions are just to help you with these details in your conversations later on. Keep your answers in mind as you talk with the people you meet, and if you like, you may think of a situation you have been in before.

1. Imagine you are looking for a new job. What happened to you in your old job? (How did that job end, or has it ended yet?)
2. Imagine you are bringing some beer to this picnic. What kind of beer are you bringing? How much did you pay for it? In your opinion, how good is it?
3. Imagine you are arriving later than you planned. Why are you late?
4. If you had a hamburger, how would you like it fixed? (What would you put on it?)
5. Imagine yourself as the pitcher of a slow-pitch softball game. How do you feel about your ability as a pitcher?

Since you will be talking to people on tapes, their statements might not follow directly from what you have just said. Don't worry about it when this happens. Instead, just respond to their comments as naturally as you can.

Before we actually begin, you will also hear a short practice tape. On this tape, you will be talking with a woman. This is so you'll get used to the tapes and we can check out our equipment. When you finish this tape, I'll give you some very brief feedback about how things went. But remember, just be yourself. Respond as naturally as you can, and use complete sentences.

Tape Transcripts

Tape: 0

Style: Friendly (Practice Tape)

Name: Susan

1. Hi. My name's Susan.
2. I'm glad you made it. We were wondering what happened to you.
3. I see you brought some beer. What kind did you bring?
4. You look hungry. How would you like your burger fixed?
5. I hear you're looking for a new job.
6. What happened with your old job?
7. I see. Tell me, how long have you been pitching softball?
8. You must be pretty good at it then.
9. You know, you remind me of my brother.

Tape: 1

Style: Friendly dominant (Managerial-Autocratic)

Name: Mark

1. Hello there. Glad to see you made it afterall.
2. It took you quite a while to get here. Any trouble with the directions I gave you?
3. Glad it wasn't worse. Put that on the table. We can always use more beer.
4. You look tense. Here, sit down and relax. Then I'll introduce you to everybody.
5. OK, but how about a beer? Settle in a bit.
6. Here's your beer. Have a burger while you're at it.
7. Do you really have a job interview with Schacter & Company? What's up?

8. Be sure to tell them I sent you. I'm well known around there and the job would be a good one for you.
9. In fact, why don't you have me send them a recommendation? I could write you a good one.
10. Let's go easy on the beer. Then we can really party after the game's over.
11. In fact, given the competition, maybe you'd better warm up your pitching. Let's go and I'll coach you.
12. If you ever have any problems, just ring me up. With my experience, I could probably help you out with most anything, couldn't I?

Tape: 2

Style: Friendly dominant (Responsible-Hypernormal)

Name: Howard

1. Hi! Have a burger. I saved you the best of the bunch.
2. I'm glad you made it in time for the game. I know how much you wanted to play.
3. Oh, there's the beer you bought. I must say, you have excellent taste. You couldn't have made a better choice.
4. But you know, you do look bushed. Something wrong?
5. I can understand how you feel.
6. And with your pressures at work, it's easy to see why you're looking for a new job. Any luck yet?
7. Well, even if it doesn't work out right away, don't give up hope. Just remember, something's bound to work eventually.
8. Actually, I think there's a good opening in John Stevenson's outfit. Why don't you give that a try too?

9. So, aside from that, how do you feel about the picnic? Are you enjoying yourself?
10. I've been getting worried about Paul though. He seems really depressed. You think you could cheer him up a bit?
11. Well, it looks like they're about to start the game. Let's go. I'll coach you on your pitching.
12. But remember, I'm always available. If you ever need a helping hand, just let me know. OK?

Tape: 3

Style: Friendly submissive (Cooperative-Overconventional)

Name: Carl

1. There you are. Good to see you. Now the whole team is here.
2. We were beginning to worry about you. But actually, you look like you're in fine shape.
3. Oh look at that! You brought us some more beer. Do you mind if we try it?
4. Fred's grilling us some burgers. How do you want yours cooked?
5. OK. That really sounds good. I'll tell him to fix mine the same way.
6. So anyhow, how are you doing? I gather you're getting a new job and moving up in the world.
7. That sounds exciting. Could you tell me more about it?
8. I'll bet you do well in the job interviews. You must know exactly what they want to hear.
9. I'm glad you're pitching on our team. It sure helps us out.
10. This will be a challenging game, don't you think? What do you think of our opponents?

11. Listen, I absolutely agree with you. I'm sure you're right.
12. Hey, it was nice seeing you again. How would you like to come fishing with me? We could bring the boat and stay all day.

Tape: 4

Style: Friendly submissive (Docile-Dependent)

Name: Don

1. There's our man. Boy, am I ever relieved to see you!
2. I was afraid we'd have to pitch this game without you. Where've you been?
3. Well, at least you brought us some good beer. I'm so nervous I could use it.
4. I'd fix you a burger, but I don't know how you'd like it.
5. Maybe you should fix it yourself. Do you have everything you need?
6. You know, you're an excellent pitcher. It makes me feel like we've got a really good team.
7. I'm nervous about this game, though. I'll probably get up to bat and shake so bad that I'll strike out.
8. But at least we don't have to worry about you. You look pretty calm.
9. Tell me. I hear you're looking for a new job. Is that true?
10. I've been thinking about looking for a job too. But decisions are always so hard for me. What do you think I should do?
11. I'm just never sure I'm doing the right thing. Especially in the interviews. Could you help me out with this?
12. You know, I've probably never told you this, but you're a good man. I will definitely follow your advice, but I'll probably need more.
OK?

Tape: 5

Style: Hostile submissive (Self-effacing-Masochistic)

Name: Steve

1. Hi. I see you finally made it. I was pretty sure you'd forgotten.
2. Do you mind offering me one of your beers? If you insist, I'll pay you for it.
3. They have burgers too, but don't ask me to get you one. I'm sure I'd just put all the wrong stuff on it.
4. By the way, I've been meaning to ask you, about your new job.
5. I'm sorry. I didn't know that. I was--just wondering.
6. You make me wish I could get a better job. But with competition like you, I doubt I ever will.
7. If you'd rather talk with someone else, just say so. I'll understand.
8. But you are looking good today. As for your pitching--I guess you'll be looking for a better team soon, won't you?
9. I guess I'm probably boring you to death, aren't I?
10. I hate these picnics. I just never know what to say.
11. Can you think of anything else to talk about?
12. No, I'll leave you alone now. No matter how hard I try, I always seem to louse things up.

Tape: 6

Style: Hostile submissive (Rebellious-Distrustful)

Name: Robert

1. Hi. You finally made it. I guess you weren't too eager to come afterall.
2. Is this beer? How much did you pay for it?

3. Well then, I guess you must still be richer than I am. I heard you got laid off.
4. Listen man, I know how bad it can get. I've been laid off of three jobs already.
5. Yeah, and if I worked for you, you'd probably lay me off too, wouldn't you?
6. I see you even got a bun for your burger. I never did. They told me the buns were gone.
7. It just makes me angry. All the dishonest people here. I was hoping for something better than this.
8. Even you avoid me every chance you get.
9. Sure. I understand. Why bother with me if you can possibly avoid it?
10. I just wonder when I'm going to get my chance to show what I can do. You get to pitch, but I never do.
11. Look man, you good-looking guys always get center stage. And I'm stuck in outfield where people need binoculars just to see me!
12. You want to know the real truth? I don't think you'll ever understand me. Why don't you just leave me alone?

Tape: 7

Style: Hostile dominant (Aggressive-Sadistic)

Name: Allen

1. Hi. What are you doing here? The picnic's over, you know.
2. I'm just kidding. But you sure came late. You're lucky you haven't missed the game.
3. So what's all the beer for? You planning to get drunk or something?
4. Well, I sure wish you'd pay more attention to your lousy pitching.

Half the time you're over the guy's head.

5. I also hear you got fired. You seem to have a hard time keeping a job, don't you?
6. That figures. I always thought you were too wishy-washy to stick things out.
7. Come off it. You even look like a quitter. Surely you're not planning to keep a job?
8. So? Now I suppose you're going to try and tell me we have a great team.
9. Well, I think things could be a lot better. If it weren't for the booze, I'd probably quit and go home.
10. Oh no you don't! Hands away from my burgers. Go get your own, if there are any left.
11. Boy, you can't trust anybody anymore.
12. Now look here! You're getting off easy! I haven't even begun to tell you what I really think!

Tape: 8

Style: Hostile dominant (Competitive-Narcissistic)

Name: Nick

1. Oh hello. I didn't know you were here. Nice to see you.
2. You should have come sooner. The burgers were much better before they got cold.
3. Are you the one who brought this beer? There are better brands, in case you didn't know.
4. So anyway, how are things going? I must say, you don't look very good.

5. I thought you were in trouble. I heard you lost your job too.
6. So how come it's taking you so long to find a new one?
7. Well my job is super. I just earned another promotion.
8. Not only that, but it's well known I'm the best salesman they've ever had. We're buying a custom-built house too.
9. I'm also thinking about quitting the team. I'd just like to do something classier--you know--like sailing or something.
10. Which reminds me. I hope you've been practicing your pitching. It wasn't very good last time, you know.
11. I wonder when they're going to start the game. It gets pretty boring just eating and talking.
12. Well, when you're ready to learn something from an expert, just let me know. I might be able to find time for you.

Sample Questionnaire

Code Number _____

Please fill in the following blanks:

Age: _____ Marital Status: _____

Education: _____

Major: _____

Current Occupation: _____

Previous Occupations, if any: _____

Current Medications: _____

If you would like to receive written information about the results of this study,
then please fill in your name and permanent address:

Name: _____

Street: _____

City: _____ State: _____ Zip: _____

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Susan?

Very Unfriendly _____ Very Friendly

Very Incompetent _____ Very Competent

Very Timid _____ Very Domineering

Very Angry _____ Very Cheerful

Very Thoughtful _____ Very Rude

Very Self-Confident _____ Very Insecure

Very Appreciative _____ Very Unappreciative

Very Independent _____ Very Dependent

Suppose you and Susan continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Mark?

Very Independent _____ Very Dependent

Very Appreciative _____ Very Unappreciative

Very Incompetent _____ Very Competent

Very Thoughtful _____ Very Rude

Very Unfriendly _____ Very Friendly

Very Timid _____ Very Domineering

Very Self-Confident _____ Very Insecure

Very Angry _____ Very Cheerful

Suppose you and Mark continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Howard?

Very Unfriendly _____ Very Friendly

Very Thoughtful _____ Very Rude

Very Self-Confident _____ Very Insecure

Very Incompetent _____ Very Competent

Very Angry _____ Very Cheerful

Very Independent _____ Very Dependent

Very Timid _____ Very Domineering

Very Appreciative _____ Very Unappreciative

Suppose you and Howard continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Carl?

Very Angry _____ Very Cheerful

Very Incompetent _____ Very Competent

Very Thoughtful _____ Very Rude

Very Self-Confident _____ Very Insecure

Very Timid _____ Very Domineering

Very Appreciative _____ Very Unappreciative

Very Independent _____ Very Dependent

Very Unfriendly _____ Very Friendly

Suppose you and Carl continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Don?

Very Thoughtful _____ Very Rude

Very Independent _____ Very Dependent

Very Timid _____ Very Domineering

Very Angry _____ Very Cheerful

Very Appreciative _____ Very Unappreciative

Very Incompetent _____ Very Competent

Very Unfriendly _____ Very Friendly

Very Self-Confident _____ Very Insecure

Suppose you and Don continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Steve?

Very Appreciative	_____	Very Unappreciative
Very Self-Confident	_____	Very Insecure
Very Angry	_____	Very Cheerful
Very Independent	_____	Very Dependent
Very Incompetent	_____	Very Competent
Very Unfriendly	_____	Very Friendly
Very Thoughtful	_____	Very Rude
Very Timid	_____	Very Domineering

Suppose you and Steve continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Robert?

Very Incompetent _____ Very Competent

Very Timid _____ Very Domineering

Very Unfriendly _____ Very Friendly

Very Appreciative _____ Very Unappreciative

Very Independent _____ Very Dependent

Very Self-Confident _____ Very Insecure

Very Angry _____ Very Cheerful

Very Thoughtful _____ Very Rude

Suppose you and Robert continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Allen?

Very Self-Confident	_____	Very Insecure
Very Unfriendly	_____	Very Friendly
Very Appreciative	_____	Very Unappreciative
Very Timid	_____	Very Domineering
Very Thoughtful	_____	Very Rude
Very Angry	_____	Very Cheerful
Very Incompetent	_____	Very Competent
Very Independent	_____	Very Dependent

Suppose you and Allen continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Directions:

Each of the following scales consists of a pair of words with opposite meanings. Between these words there is a row of short horizontal lines. For each scale, put an X mark on the short line whose position most closely matches your own personal impression. You may mark any one of the short lines in the row that you like. However, do not mark more than one of them and do not make any marks between them. In addition, please be sure to rate this person on each pair of words. Do not skip any of them.

What is your personal impression of Nick?

Very Timid _____ Very Domineering

Very Angry _____ Very Cheerful

Very Independent _____ Very Dependent

Very Unfriendly _____ Very Friendly

Very Self-Confident _____ Very Insecure

Very Thoughtful _____ Very Rude

Very Appreciative _____ Very Unappreciative

Very Incompetent _____ Very Competent

Suppose you and Nick continued to see and interact with each other. How well do you think you would get along?

Extremely Poorly _____ Extremely Well

Informed Consent Forms for Students

CONSENT FORM

I, _____, agree to participate in a psychological research study, the purpose of which is to better understand how different people affect the behavior of others. This study is particularly concerned with what happens when people talk with one another.

PROCEDURES

I will answer a few short questions about such things as my age, marital status, education, occupation, and the medications I am currently taking. I will then be asked to imagine I am at a group picnic and that I am talking with some of the people there. I will hear these people on a tape recorder, and each time they make a statement or ask a question, I will answer it just as if I were actually there talking with them. My own answers will be recorded on a tape recorder. After I hear the tape of each person, I will answer some questions asking me what I thought of that person. There will be nine persons in all. I am aware that all of my responses in this study will be kept strictly confidential. Only the people working on this study will know how I responded.

RISKS AND PRECAUTIONS

The physical risks of being in this study are no greater than the risks of everyday living. The mental risks are also probably no greater than those which I experience in my everyday life.

AVAILABILITY OF INFORMATION

Any questions that I may have concerning any aspect of this investigation will be answered by Ms. Karen Ann Sox, at 559-5013.

THE RIGHT TO WITHDRAW

I am free to withdraw from this investigation at any time. I have been informed of the probable consequences of my withdrawal from the study.

SIGNATURES

I, the undersigned, have understood the above explanations and given consent to my voluntary participation in this psychological research project.

Participant _____

Investigator _____

Date _____

Informed Consent Forms for Patients

CONSENT FORM

Before agreeing to participate in this study, it is important that the following explanation of the proposed procedures be read and understood. It describes the purpose, procedures, benefits, risks and discomforts, and precautions of the study. It also describes the alternative procedures available and the right to withdraw from the study at any time. It is important to understand that no guarantee or assurance can be made as to the results. It is also understood that refusal to participate in this study will not influence standard treatment for the subject.

I, _____, agree to participate in a psychological research study, the purpose of which is to better understand how different people affect the behavior of others. This study is particularly concerned with what happens when people talk with one another.

PROCEDURES

I will answer a few short questions about such things as my age, marital status, education, occupation, and the medications I am currently taking. I will then be asked to imagine I am at a group picnic and that I am talking with some of the people there. I will hear these people on a tape recorder, and each time they make a statement or ask a question, I will answer it just as if I were actually there talking with them. My own answers will be recorded on a tape recorder. After I hear the tape of each person, I will answer some questions asking me what I thought of that person. There will be nine persons in all. I am aware that all of my responses in this study will be kept strictly confidential. Only the people working on this study will know how I responded.

RISKS AND PRECAUTIONS

The physical risks of being in this study are no greater than the risks of everyday living. The mental risks are also probably no greater than those which I experience in my everyday life.

AVAILABILITY OF INFORMATION

Any questions that I may have concerning any aspect of this investigation will be answered by Ms. Karen Ann Sox or Dr. Thomas DeVoge, at 559-5013.

COMPENSATION

The University of Cincinnati Medical Center and the Cincinnati Veterans Administration Medical Center follow a policy of making all decisions concerning compensation and medical treatment for injuries occurring during or caused by participation in biomedical or behavioral research on an individual basis. If I believe I have been injured as a result of research, I will contact Ms. Karen Ann Sox or Dr. Thomas DeVoge.

THE RIGHT TO WITHDRAW

I am free to withdraw from this investigation at any time. Should I wish to withdraw I have been assured that standard therapy for my condition will remain available to me. I have been informed of the probable consequences of my withdrawal from the study.

WITNESSING AND SIGNATURES

Participant _____

Investigator _____

Witness _____

Date _____

**PART I-AGREEMENT TO PARTICIPATE IN RESEARCH
BY OR UNDER THE DIRECTION OF THE VETERANS ADMINISTRATION**

DATE

I, _____, voluntarily consent to participate as a subject
(Type or print subject's name)
in the investigation entitled _____
(Title of study)

2. I have signed one or more information sheets with this title to show that I have read the description including the purpose and nature of the investigation, the procedures to be used, the risks, inconveniences, side effects and benefits to be expected, as well as other courses of action open to me and my right to withdraw from the investigation at any time. Each of these items has been explained to me by the investigator in the presence of a witness. The investigator has answered my questions concerning the investigation and I believe I understand what is intended.

3. I understand that no guarantees or assurances have been given me since the results and risks of an investigation are not always known beforehand. I have been told that this investigation has been carefully planned, that the plan has been reviewed by knowledgeable people, and that every reasonable precaution will be taken to protect my well-being.

4. In the event I sustain physical injury as a result of participation in this investigation, if I am eligible for medical care as a veteran, all necessary and appropriate care will be provided. If I am not eligible for medical care as a veteran, humanitarian emergency care will nevertheless be provided.

5. I realize I have not released this institution from liability for negligence. Compensation may or may not be payable, in the event of physical injury arising from such research, under applicable federal laws.

6. I understand that all information obtained about me during the course of this study will be made available only to doctors who are taking care of me and to qualified investigators and their assistants where their access to this information is appropriate and authorized. They will be bound by the same requirements to maintain my privacy and anonymity as apply to all medical personnel within the Veterans Administration.

7. I further understand that, where required by law, the appropriate federal officer or agency will have free access to information obtained in this study should it become necessary. Generally, I may expect the same respect for my privacy and anonymity from these agencies as is afforded by the Veterans Administration and its employees. The provisions of the Privacy Act apply to all agencies.

8. In the event that research in which I participate involves certain new drugs, information concerning my response to the drug(s) will be supplied to the sponsoring pharmaceutical house(s) that made the drug(s) available. This information will be given to them in such a way that I cannot be identified.

I _____
NAME OF VOLUNTEER

HAVE READ THIS CONSENT FORM. ALL MY QUESTIONS HAVE BEEN ANSWERED, AND I FREELY AND VOLUNTARILY CHOOSE TO PARTICIPATE. I UNDERSTAND THAT MY RIGHTS AND PRIVACY WILL BE MAINTAINED. I AGREE TO PARTICIPATE AS A VOLUNTEER IN THIS PROGRAM.

9. Nevertheless, I wish to limit my participation in the investigation as follows:

VA FACILITY	SUBJECT'S SIGNATURE
WITNESS'S NAME AND ADDRESS (Print or type)	WITNESS'S SIGNATURE
INVESTIGATOR'S NAME (Print or type)	INVESTIGATOR'S SIGNATURE

☐ Signed information sheets attached. ☐ Signed information sheets available at:

SUBJECT'S IDENTIFICATION (I.D. plate or give name - last, first, middle)

SUBJECT'S I.O. NO.

WARD

**AGREEMENT TO PARTICIPATE IN
RESEARCH BY OR UNDER THE DIRECTION
OF THE VETERANS ADMINISTRATION**

VA FORM 10-1086
SEP 1979

SUPERSEDES VA FORM 10-1086
JUN 1975, WHICH WILL NOT BE
USED.

APPENDIX B

INSTRUCTIONS TO RATERS

Written by Charles L. Kronberg, Ph.D.

Modified by Karen Ann Sox

Original source: "Interpersonal Style and Complementary Response Evocation" by C. L. Kronberg, unpublished doctoral dissertation, Duke University, 1975.

Modifications

1. The word "friendliness" was substituted for the word "affection."
2. Instead of ranging from 1 (high submission) to 7 (high dominance), the Dominance-Submission dimension now ranges from -3 (high submission) to +3 (high dominance).
3. Instead of ranging from 7 (high hostility) to 1 (high friendliness), the Hostility-Friendliness dimension now ranges from -3 (high hostility) to +3 (high friendliness).
4. For additional rater practice, transcripts of the items in Kronberg's stimulus and practice tapes were included as Section VIII of this manual. They are not presented in the same order as they were on the tapes. Charles Kronberg originally classified the statements according to their corresponding quadrants. The criterion ratings, which also express intensity, were subsequently developed by Karen Ann Sox.
5. Section IX was written by Karen Ann Sox.

I. Introduction

Interpersonal style corresponds to surface behavior and the impact behavior has in particular situations. It is not necessarily directly related to underlying motives, feelings, intentions or dynamics. An individual's interpersonal style, to use an analogy, is the position, stance or posture he prefers to assume in relating to others. Position is assessed primarily from the connotation, rather than the content, of what one is saying. It is the message one gives as to where he stands vis-à-vis another person. Consider the following set of statements: 1) "I invited you to dinner on Monday and you haven't let me know whether you are coming yet. I know you're a busy man. But I want a reply." 2) "I invited you to dinner on Monday and you haven't let me know whether you are coming yet. I know how busy you are, but if you can let me know soon, I would really appreciate it." In each statement the information conveyed is essentially the same, but the stances assumed by the people making the statements differ.

One can meaningfully talk about positioning as occurring on two dimensions--vertical and horizontal. Vertical positioning refers to an individual's preferred stance on the dimension "Above-Below" or "Dominance-Submission." The Dominance-Submission dimension includes behaviors which are dominant, assertive, ascendant, leading, controlling, etc., on the one hand, and submissive, retiring, obsequious, unassertive, following, etc., on the other. Horizontal positioning refers to the stance one assumes in relating to others on the dimension "Towards-Against" or "Hostility-Friendliness." The Hostility-Friendliness dimension characterizes the "flow of affect" between two people relating, and includes behaviors which are hateful, aggressive, rejecting, punishing, attacking, disaffiliative,

etc., on the one hand, and accepting, loving, affectionate, affiliative, friendly, etc., on the other.

II. The Rating System

When a group of responses is collected, you, as a rater, will be asked to assign each response to appropriate interpersonal categories. You will be asked to rate each response on two seven-point dimensions: Dominance-Submission and Hostility-Friendliness. For each response you rate, you will have a maximum of four tasks. Your first task will be to examine the response with respect to Dominance-Submission and decide whether it is Dominant, Submissive or Neutral. (Neutral responses are responses which can be classified as neither Dominant nor Submissive.) The next task is to examine the response with respect to Hostility-Friendliness and decide whether it is Hostile, Friendly or Neutral. (Here Neutral responses are responses which can be classified as neither Hostile nor Friendly.)

The two tasks described above deal with ratings concerning the quality of the response. The last two tasks are concerned with intensity ratings, i.e., you will decide how Dominant, Submissive, Hostile or Friendly the response is. (Neutral responses automatically receive an intensity rating of 0. The reason for this will become clear as you read on.) The third task involves Dominance-Submission (D-S) intensity ratings. If you think a response falls on either the Dominance or the Submission side of the D-S dimension, you should further classify it as falling within one of three divisions: High, Moderate or Low. The fourth task involves Hostility-Friendliness (H-F) intensity ratings. If you think the response falls on the Hostility or the Friendliness side of the H-F

dimension, you should also rate it as High, Moderate or Low.

In the early stages of rating, you may want to follow this step-by-step procedure, but as you become more familiar with the system you will be able to make ratings quickly--almost automatically--and may not need to go through each step sequentially.

A two-number system is used for rating each response. The first number is the rating on the D-S dimension, and it can be any number from -3 to +3. The second number is the rating on the H-F dimension, and it too can be any number from -3 to +3. Ratings of -3, -2 and -1 represent High, Moderate and Low Submission or Hostility, respectively. Ratings of 1, 2 and 3 represent Low, Moderate or High Dominance or Friendliness, respectively. A rating of 0 represents a Neutral rating on either dimension. Figure 1 below presents a graphic representation of the rating system. This figure, along with the examples that follow it, should serve to eliminate any confusion about what the rating numbers represent.

Submission			Neutral		Dominance	
-3	-2	-1	0	1	2	3
High	Mod.	Low	Neut.	Low	Mod.	High

Hostility			Neutral		Friendliness	
-3	-2	-1	0	1	2	3
High	Mod.	Low	Neut.	Low	Mod.	High

Figure 1. Graphic Representation of the Rating System.

Example 1: A rating of 3;2 means High Dom.; Mod. Friend.

Example 2: A rating of -1;0 means Low Sub.; Neutral H-F.

Example 3: A rating of -3;-2 means High Sub.; Mod. Host.

Example 4: A rating of 0;0 means Neutral D-S; Neutral H-F.

In the proceeding four sections you will be provided with guidelines for making quality and intensity ratings. Each section deals with a

different variable (Section III, Dominance; Section IV, Submission; Section V, Hostility; Section VI, Friendliness). In Part A of each section behaviors which are within the range of the variable under consideration will be listed. These lists should help provide more extensive information about the variables and should be helpful in making quality ratings. In Part B of each section a caricature of people whose interpersonal behaviors are predominantly those of the variable under question will be presented. These caricatures are exaggerated pictures, but they could be even more helpful than the list of behaviors in Section A for getting a feeling of what the variable is about. In Part C of each section principles for making intensity ratings will be provided; and in Part D examples of specific responses that are High, Moderate and Low on each variable will be listed.

Before proceeding with the guidelines, there is an important point about this rating system that should be made clear. It is important to note that it is surface behavior that is being rated. The primary focus should be upon the impact behavior has in the situation under observation, and not in the motives or intentions of the person who is making the response. For example, assume you know that A dislikes B, because B is always nasty to A, A tells you he dislikes B and A even says, "The next time I see B I am going to be hostile to him." Assume further that the next time A sees B we watch them and B says to A, "Boy, you look sloppy today"; and A responds, "You look good today," in a sincere, affectionate tone of voice. Now if we had to rate A's statement we would rate it as friendly, even though we have information which would indicate that A wants to be hostile, A has a right to be hostile and A may even feel hostile underneath. Raters who are used to viewing behavior in terms of underlying

dynamics and motivations often find it confusing, difficult or even irritating to rate just surface behavior. Such an attitude is understandable, but it is important for the purposes of this research to stay with the impact the behavior has in the given situation and rate statements accordingly.

III. Dominance--Vertical "Above" Positioning

A. Some behaviors that fall in the domain of Dominance. Rating for quality.

Bossing; dictating; commanding; telling people what to do or how to do it; disciplining; blaming others; censuring; judging; criticizing; competing; rivaling; showing off; offering to "take over"; taking initiative; leading; directing; managing; controlling; asserting; offering help, advice, suggestions, guidance; explaining; instructing; informing.

B. Caricature of Dominance

Puts self in "above" position by treating others as "children" needing information, help, love, comfort, guidance, direction, sanctions, prohibitions, discipline, "straightening out" or "the word"; and by showing his own strength, superiority or power. Makes decisions with confidence in terms of what he sees as the "right way." Reacts to stress by asserting authority, competing, blaming others or seeking out others to comfort, direct or punish.

Upright posture. Presumptuous presentation of self. Uses gestures like extended or pointed finger, open arms, or "patting on the head." Stern, assertive, commanding, confident tone of voice. Uses imperative or moralistic tone in writing. Uses phrases like, "you ought, had better, should, or must," "the best thing for you is . . .," "shape up," "poor

thing," "do . . . !" "don't . . . !"

C. Rating for intensity

In the sections dealing with intensity ratings, the person who makes a response, or statement, will be referred to as the Sender and the person to whom the statement is directed as the Receiver, or Recipient.

The analogy of Dominance as "Above" positioning can be extended to include intensity. If a person's response reveals that he is presenting himself to be "above" (dominant in relationship to) the person he is interacting with, we can ask: "How far 'above' is he putting himself?" The answer to this question will tell us something about the intensity of his response. Using the positioning analogy, we can say that a Dominant Sender presents himself as assuming an upright posture. By examining his statement we can also infer how he is viewing the person he is interacting with (the Receiver), and can thereby classify his response as being High, Moderate or Low with respect to Dominance; so that:

1. A Sender making a High Dominant response views the Receiver as lying prone, or kneeling.
2. A Sender making a Moderate Dominant response views the Receiver as being stooped over, or in the process of getting up. (Here the Recipient is seen as basically able to stand, but is not doing so.)
3. A Sender making a Low Dominant response views the Receiver as standing upright, but as somehow differently situated than he is. Here the Sender sees the Receiver as merely not having the same perspective that he does.

Bearing the above analogy and the Dominance caricature in mind, the following principles should prove helpful in discriminating among the three levels of Dominance:

1. High Dominance: 3 rating

The attitude of the Sender is of complete superiority, control, and/or direction (etc.), over the Receiver, so that the Receiver is not granted any room to qualify or question the Sender's advice, sanction, command (etc.), or his definition of the situation. The Sender's behavior is intrusive and autocratic so that the help, suggestion, correction (etc.) he gives the Receiver is imposed or dictated, rather than offered or suggested. The Sender acts as if he is talking to a needy, helpless, misdirected child; i.e., he views the Receiver as being in a prone or kneeling position.

2. Moderate Dominance: 2 rating

The Receiver is seen in a more mature position than a helpless, needy or misdirected child, but he is not viewed as the Sender's peer or equal. The attitude of the Sender is still one of superiority, control or direction over the Receiver, but it is not absolute. Also, the attitude of the Sender is less intrusive and autocratic so that the Receiver is, at least implicitly, conceded some room to qualify or question the Sender's statement.

3. Low Dominance: 1 rating

The Sender sees the Receiver as essentially his peer or equal; but one who is lacking the Sender's perspective or who is for the moment in need, or "out of step." The Sender's superiority, control, etc., is presented as being merely incidental, rather than inherent. The attitude of the Sender is not intrusive or autocratic, but that of one who offers help, direction, correction (etc.) in such a way that it can be accepted, questioned, qualified or ultimately rejected.

D. Examples of Low, Moderate and High Dominant responses to a sample statement

Sample statement: "I'm going to make plane reservations for Florida for spring vacation."

- | | |
|-----------------------------|---|
| High Dominant Responses | 1. You've waited too long to make reservations. You'll never get a seat now, stupid.
2. You can't go! You have three term papers to do.
3. Don't make reservations! I'm driving to Florida. You come with me! |
| Moderate Dominant Responses | 1. I think you waited too long. You'd better do it now. Flights are booked far in advance.
2. How can you do three term papers and go on vacation?
3. Why make reservations? I'm driving to Florida. Why don't you come with me? |
| Low Dominant Responses | 1. I think you may have waited too long. Reservations are often hard to get this late.
2. What are you planning to do about the three term papers you have to write?
3. I'm driving to Florida. If you'd like you can come with me. |

IV. Submission--Vertical "Below" Positioning

- A. Some behaviors that fall in the domain of Submission. Rating for quality.

Conforming; following; persuasible; apologizing; assuming or accepting blame; tentativeness; indecisiveness; subservience; ingratiation; obsequiousness; unassertiveness; self-criticizing; underrating own skill or

accomplishment; modesty; asking for assurance, advice, guidance, information, etc.; acting confused; acting guilty; whining; complaining; cowering.

B. Caricature of Submission

Puts self in "below" position of a needy, fearful, helpless, naive, neglected, naughty, guilty, rejected, or incompetent child who needs help, guidance, information, sanction, comfort, or direction from others. Emphasizes his own weakness, need, incompetence or lack of knowledge. Makes decisions with great difficulty and usually avoids making decisions by following or constantly searching for the directions, suggestions or commands of others. Reacts to stress by seeking help, blaming self, withdrawing, complaining or finding others to respect and obey.

Cowering posture. Diffident or obsequious presentation of self. Uses gestures like lowered head, averted glance, "naive look," or pouting. Whining, fearful, plaintive, compliant or naive tone of voice. Uses expressions like, "Oh, no!", "I can't," "Oh, my God"; "What am I going to do?", "What would I do without you," or "I'm such a dope."

C. Rating for intensity

Extending the position analogy to Submission, the Submissive Sender can be seen as himself assuming one of three positions: (1) Low Submission--upright; (2) Moderate Submission--stooped or in the process of getting up; (3) High Submission--prone or kneeling.

Bearing this analogy and the Submission caricature in mind, the following principles should be helpful in making intensity ratings of Submission:

1. Low Submission: -1 rating

The Sender sees himself as essentially the Receiver's equal or peer.

But, for the moment, is in a position of need. The Receiver is invited to dominant status, but only within defined limits. The Sender's communication is not an imposition, or plea, and the Receiver is given room to qualify, question or ultimately reject the Sender's invitation.

2. Moderate Submission: -2 rating

The attitude of the Sender is not of complete inferiority, helplessness, confusion, guilt (etc.), but it is also not the attitude of one who is in complete control. The Sender indicates that his need, inferiority (etc.) is substantial, but that he does not wish the Receiver to be completely dominant. (The Sender is not without at least a sense of self-worth or sufficiency.) The Sender's request to the Receiver is not a helpless plea but also not merely an invitation. Consequently, the Receiver is allowed some options to qualify the Sender's definition of himself or the situation.

3. High Submission: -3 rating

The attitude of the Sender is one of definite inferiority, helplessness (etc.). The Receiver is imposed upon to assume a superior position; i.e., the Sender construes himself as being in such a low position that it becomes difficult for the Receiver to do anything but to direct, control, judge, lead (etc.) him.

D. Examples of High, Moderate and Low responses to a sample statement.

Sample statement: "I'm going to make plane reservations to Florida for spring vacation."

- | | |
|------------|--|
| Low | 1. I've never been south of Georgia. |
| Submissive | 2. I want to go to Florida also. Do you think if I wait until |
| Responses | next week I can still get a reservation? |
| | 3. I'd like to go on vacation but I don't know if I'll be able |

to get those term papers finished on time.

- | | |
|------------|--|
| Moderate | 1. Isn't it going to be hard to find things to do in a strange |
| Submissive | place? |
| Responses | 2. I want to go to Florida also. Making reservations is such a hassle. Hey, when you make those reservations, make some for me too. Huh? |
| | 3. You'll probably get those term papers done. But I'm not sure I'll be able to. |
| High | 1. You're so brave. Going all the way to Florida by yourself. |
| Submissive | 2. Oh, wow! I'm so scared of flying. Take me with you. |
| Responses | 3. I'd like to go to Florida too. But I can't finish all those term papers like you can. I'm such a slowpoke. |

V. Hostility--Horizontal "Against" Positioning

- A. Some behaviors that fall in the domain of Hostility. Rating for quality.

Ridiculing; deprecating; maligning; depreciating; belittling; acting sadistic, contemptuous; displaying "chip-on-the-shoulder" attitude or rebelliousness; expressing anger, annoyance, irritation, impatience; blaming; expressing cynicism, skepticism, wariness; defying; attacking; rejecting; punishing.

B. Hostile caricature

Puts self in "against" position by treating others as attackers, villains, rivals, enemies, persecutors, exploiters, or people worthy of contempt. Is sarcastic, suspicious, impatient; complains, irritates, annoys, argues; berates, ridicules, excoriates, maligns or blames others

or self. Makes decisions with indifference or malevolence toward the wishes, feelings, desires, etc., of others. Reacts to stress by attacking or distrusting others. Also by feeling righteously indignant or getting others to attack him.

Belligerent or self-demeaning presentation of self. Uses gestures and facial expressions like raised fist, scowls, sneers, leers. Curses readily and vigorously. Angry tone of voice. Uses sarcastic, belligerent or martyred tone in writing.

C. Rating for intensity

We can extend the analogy of Hostility as "Against" positioning to include intensity. When a Sender assumes a Hostile position, he is either construing the Receiver and himself as adversaries opposing one another, or, he is asking the Receiver to join him in attacking himself, a third person or the situation. If a person's response reveals that he is assuming an "Against" position, we can ask, "How much force is he exerting against whomever, or whatever, he is attacking?" Therefore, we can view variations in intensity of Hostility as variations in the force exerted by the Sender against the Receiver, himself, a third person or the situation.

Bearing the above analogy and the Hostility caricature in mind, the following principles should prove helpful in discriminating among the three levels of Hostility.

1. High Hostility: -3 rating

The hostility entails a radically negative evaluation. The object of the hostility is seen as worthless, evil, contemptible and with little or no saving graces. The extent of hostility is unqualified and is explicitly and emphatically expressed. The effect is often to generate pain or hurt of a debilitating nature; and it is likely to produce a

comparably hostile response.

2. Moderate Hostility: -2 rating

The hostility may be qualified, but it is expressed with marked emotional flavor. The basic attitude is one of substantial hostility, but it is qualified. The hostility is directed neither at the intrinsic nature of the object, nor at some incidental quality of the object. The effect is often to generate pain and hurt, but not of a debilitating nature.

3. Low Hostility: -1 rating

The attitude toward the object is essentially of mild hostility, neutrality or even friendliness and the hostility expressed is limited to some highly qualified incidental aspect of its object. The expression of hostility may be direct, indirect or implicit, but the important thing is that it is without marked emotional flavor. The effect is often to produce minor annoyance, or irritation, or even to promote constructive self-evaluation.

D. Examples of Low, Moderate and High Dominant [sic] responses to a sample statement

Sample statement: "I'm going to make plane reservations for Florida for spring vacation."

- | | |
|-----------|---|
| High | 1. I guess you really are having a hard time finding women |
| Hostile | (men) up here. |
| Responses | 2. The little rich boy (girl) has his (her) fling. |
| | 3. You'll really fit in with that phoney Miami Beach crowd. |
| Moderate | 1. You'll probably have a good time. With my personality I |
| Hostile | wouldn't last two days. |

Responses 2. Jesus, I wish I had money to throw around like that.

3. What a bourgeoisie place to go.

Low 1. If I weren't such a coward about flying, I'd fly too.

Hostile 2. But Florida is such a dull place. Why don't you go to the

Responses Bahamas?

VI. Friendliness--Horizontal "Toward" Positioning

A. Some behaviors that fall in the domain of Friendliness. Rating for quality.

Loving; sympathizing; supporting; helping; encouraging; commiserating; displaying affection, agreeableness; doting; pampering; self-sacrificing; displaying openness, acceptance, friendliness, warmth, generosity, tolerance, patience; trusting; looking on the "bright side"; expressing optimism, Pollyannish attitude; praising; showing consideration, appreciation, understanding; behaving politely, respectfully; cooperating.

B. Caricature of Friendliness

Puts self in "Towards" position by treating others as friends, trusted allies, confidantes, people whose help could be taken for granted or people to whom help will be given without hesitation or reservation. Sees other people and/or self as worthy of respect, trust and affection. Is tender and softhearted, forgiving, kind and reassuring. Is fond of everyone and is always friendly, neighborly and sociable. Gives freely of self and is big-hearted. Expresses optimism; sees a "silver lining in every cloud." Makes decisions with consideration or active concern for the feelings, wishes, desires, etc., of others. Reacts to stress by being effusively affectionate, or by being extremely solicitous toward the welfare of others, or by adopting an "everything will be beautiful"

attitude. Also by emphasizing own self-esteem and expressing certainty about the trustworthiness of and help that can be expected from others.

Benevolent, saintly or effusively affectionate presentation of self. Uses gestures and facial expressions like caressing, touching, stroking, smiling. Affectionate, sincere, or soothing tone of voice. Expressions like, "Oh, how nice," "It'll be all right," "Thank you so much," ". . ., Dear," "Honey."

C. Rating Friendliness for intensity

Extending the position analogy to include Friendliness, we can view variations in Friendliness as variations in the force exerted in moving toward the object of affection.

1. Low Friendliness: 1 rating

The Sender's attitude toward the object is essentially neutral or one of mild friendliness or even hostility. The friendliness is limited to some incidental aspect of its object. The expression of the friendliness may be direct, indirect or implicit, but the important thing is that it is without marked emotional flavor. The effect is not likely to produce a significant amount of pleasure in the Receiver, but is generally seen as only expected politeness, affability, etc.

2. Moderate Friendliness: 2 rating

The friendliness may be qualified, but it is expressed with marked emotional flavor. The basic attitude toward the object is one of substantial friendliness but not as extreme as in a response rated "3." The friendliness is directed neither at the intrinsic nature of the object, nor at some incidental quality of the object. The communication reflects approval but not adulation.

3. High Affection: 3 rating

The friendliness entails a radically positive evaluation. The object of the friendliness is seen as valuable and worthy of admiration and respect; and is seen to have only minor faults, or no faults at all. The extent of friendliness is unqualified, and it is explicitly and emphatically expressed. The effect is to generate pleasure, good feeling or reassurance in the object.

D. Examples of High, Moderate and Low Friendliness responses to a sample statement

Sample statement: "I'm going to make plane reservations for Florida for spring vacation."

- | | |
|-----------|---|
| High | 1. I'm so happy for you. A vacation like that couldn't happen |
| Friendly | to a nicer person. |
| Responses | 2. Oh, Florida is a paradise. You'll never be able to leave. |
| | You'll love it. |
| | 3. You're terrific! Work hard, get your stuff done, and then |
| | go on vacation. I really admire you. |
| Moderate | 1. That's great! You really deserve a vacation. |
| Friendly | 2. Florida's a great place. I'm sure you'll enjoy yourself. |
| Responses | 3. You must be a super well-organized person to be able to take |
| | a spring vacation. |
| Low | 1. Have a good time. |
| Friendly | 2. That's cool. Where are you going to stay? |
| Responses | 3. Florida is a fun place. |

E. Examples of responses that are Neutral on both D-S and H-F dimensions

1. Oh, you're going on a trip.
2. Oh, yea. I've got an uncle who lives in Florida.
3. What part of Florida are you going to?

VII. Sample Responses to Sample Items with Ratings on Both Dimensions

Sub.	-3	-2	-1	0	1	2	3	Dom.
	Hi	Mod	Lo	Neut	Lo	Mod	Hi	
Host.	-3	-2	-1	0	1	2	3	Friend.
	Hi	Mod	Lo	Neut	Lo	Mod	Hi	

Item A: "I just got a letter from my draft board telling me I'm to be drafted soon. I don't want to go."

Response:		Ratings
1	Gee, that's too bad.	0;1
2	That's horrible. I feel so bad for you. I'll do anything I can to help.	1;3
3	Where's your patriotic spirit! You coward. The army makes men out of boys.	3;-3
4	I've got a friend who's a draft counselor. Do you want his name?	1;1
5	I know a doctor who writes letters and gets people out, I'll call him for you.	3;1
6	Oh, my God! I hope my telling you not to worry about it didn't affect things.	-3;1

Response:		Ratings
7	You fool. If you'd listened to me earlier and applied for a medical exemption, you wouldn't be in this mess.	2;-2
8	Do you have any grounds on which to appeal?	0;0
9	Neither would I.	0;1
10	But you'll have to go; it'll work out O.K. Don't worry.	2;2

Item B: "I know I've already made two loans from you already.
But I need \$10."

Response		Ratings
1	When you pay back the other two, I'll be in the position to lend you more.	2;0
2	No more loans!	3;-1
3	I'm just so poor now. Why do you always take advantage of me?	-3;-2
4	Are you asking me for another loan? (Indignantly)	0;-2
5	Are you asking me for another loan?	0;-1
6	I don't have any money now. I'm sorry for you. I'll try to see if I can borrow it from someone else for you.	-3;2
7	What do you need it for?	2;0
8	You poor thing! I'll lend you the money but let me make a budget for you so this won't happen to you again.	3;3
9	What have you done with the money I've given you already? Burned it up?	2;-2
10	I'll give it to you, you incompetent S.O.B.	1;-3
11	Incompetent leech! I'm not giving you another dime because I know you'll throw it away on junk.	3;-3

Item C: You've just told X that you've accepted a job in the town he lives

X: "As soon as you get to the airport, call me. I'll pick you up and help you get located."

Response:		Ratings
1	I appreciate the thought. But I'd rather do it myself.	1;1
2	I already have a place to live.	0;0
3	Lay off. I'd rather do it myself.	1;-2
4	I hope that won't be putting you to a lot of trouble. Oh, I'm so incompetent at those things. I don't know what I'd do without you.	-3;3
5	Well, O.K.--if it's no inconvenience to you.	-1;0
6	Good. And maybe you can pick up my trunk for me too? I shipped it Railway Express.	2;0
7	Maybe we can meet for dinner sometime. After I get settled.	1;1
8	You must be very lonely (sincere).	2;2
9	What are you? Some kind of sickie?	2;-3
10	Great! Thanks. If you didn't I wouldn't be able to make it myself.	-2;2
11	Yea. But will you really do it?	-1;-1
12	Quit bugging me. I've got to learn to do these kinds of things myself.	-1;-2

VIII. Practice Items

Response:		Ratings
1 a	Look, you're bright enough. That's not your problem.	<u>2</u> ; -1

Response:

Ratings

- 1 b Look, you're really bright. That's not your problem. 2 ; 2
- c Oh, you really are so bright. I don't think that's your problem. -2 ; 2
- 2 a You know it's raining and there is a lot of traffic. I couldn't ask you to slow down a little. You're in too much of a hurry. -3 ; -2
- b It's raining and there's lots of traffic. Could (pause) could I ask you to slow down a little? -2 ; 1
- c Look, you'd just better slow down right now! It's raining and there's lots of traffic. 3 ; -2
- 3 a Oh, thank you! I'm really glad you like my ring. My grandmother gave it to me. -1 ; 2
- b Well, sure it's a terrific ring! It belonged to my grandmother. 2 ; -1
- c Oh, yeah; that's my grandmother's ring. Isn't it terrific? 1 ; 2
- 4 a Make up your mind! If you don't want the radio, I'll give it to someone else. That's all there is to it! 3 ; -2
- b Uh (pause) oh (pause) since you can't use the radio, do you think it would be all right if I gave it to someone else who can? -2 ; 1
- c Oh, too bad you can't use the radio. Don't worry. I'll give it to someone else. 1 ; 2
- 5 a I don't know (pause) I get tired a lot. What a life (sigh). Now I've got to get more sleep too, I guess. Shit! -1 ; -2

Response:

Ratings

- 5 b Shit! I'm getting tired lately. I must get some more sleep! 1 ; -2
- c Gee, I'm getting so tired lately. I don't know, I guess maybe I've just got to get more sleep. -1 ; 1
- 6 a I haven't heard from Bob all week, and I was thinking that I should call him, but I don't know. What do you think I should do? -2 ; 1
- b I haven't heard from Bob all week. I don't know (pause) I was kind of thinking of calling him. That's not something you would do. You're so secure. -2 ; -2
- c I haven't heard from Bob all week. Look up that number for me and I'll call him. 3 ; -1
- 7 a Well, I heard you say you're not doing anything again tonight. You might as well join us for dinner. 2 ; -2
- b Hey, I heard you saying you're not doing anything for dinner tonight. Come on and join us. 2 ; 2
- c Oh, I, uh, heard you say you're not doing anything tonight. Gee, if you'd like, we'd really dig it if you'd come with us to dinner. -2 ; 3
- 8 a Boy, you got that so cheaply! You know, you really do well. 2 ; 3
- b Gee, you got that cheaply. You really do so well. -1 ; 2
- c You certainly got that cheaply. At least you know how to shop well. 2 ; -2
- 9 a I don't want to be late for my appointment. Could you do me a favor and check the time? -1 ; 1

Response:

Ratings

- 9 b I don't want to be late for my appointment. Now you check the time! 3 ; -1
- c Oh no, now I'm going to be late for my appointment. I don't even see a clock around here. What time do you have? -2 ; -1
- 10 a I'm having some people over to dinner tonight. Let me have some butter. 2 ; -1
- b I'm having some people over to dinner tonight, and I don't have any butter. Do you think you could let me (pause) borrow some? I'd really appreciate it. -2 ; 1
- c Listen, I'm having some people over to dinner tonight and I ran out of butter. Lend me some--and you come too. 2 ; 1
- 11 a I didn't get around to telling you yesterday. But the way you stood up to Sally was (pause), ugh, I could never do anything like that. -3 ; -2
- b Gee--I didn't get a chance to tell you then, but the way you stood up to Sally yesterday was terrific. I was so impressed! -2 ; 3
- c I didn't get the chance to tell you then, but I was impressed with the way you stood up to Sally. It's about time you were able to do that. 2 ; -2
- 12 a Rats! I lost that book you lent me last week. I'm really sorry. I don't know what to do now. (pause) Listen, if it's okay with you I can get you another copy when I'm downtown tomorrow. Would that be okay? -2 ; 1

Response:

Ratings

- 12 b Ugh, I went ahead and lost that book you lent me last week. Shit, I don't know what to do now. I guess I could make a trip downtown (pause). Okay? -2 ; -1
- c Oh, by the way, I lost that book you lent me last week. Now don't be upset. I'll get you another copy when I go downtown. 3 ; -2
- 13 a I can't get to class today. Do you think you can take some notes for me without messing up? 2 ; -2
- b Oh, look, I can't make it to class today. (pause) Would you do me a big favor and take some notes for me? -2 ; 1
- 14 a I heard you saying you're having chocolate pie for desert. I just wanted you to know I happen to be allergic to chocolate. 1 ; -1
- b Gee, I'm allergic to chocolate. I just wanted to tell you so you'll know it's not that I don't like your desert. -1 ; 1
- 15 a Oh, I know you're into working. But if you wouldn't mind taking a break, and maybe having a beer, I really think I could do a better job. -1 ; 1
- b Look, I know you're into working, but I simply cannot work on this project one minute longer. Now if we go out and have a few beers I'll be able to get into it later. 2 ; -2
- 16 a You can't wear that dress tonight. It would be a disaster. 3 ; -3

Response:

Ratings

- 16 b Gee, I don't know. I guess you're right. It might be
a mistake to wear that dress tonight. -2 ; 1
- 17 My dad runs an employment agency. I can get you a
great summer job. 1 ; 2
- 18 Well, I would like to come to your party but y'know as
usual I've got three term papers. I hope you (pause)
uh (pause) get around to asking me again. -2 ; -1
- 19 Well, I heard you did well on that exam. Some people
do good work. -1 ; -1
- 20 You can't help this afternoon, hmm. Well, we'll
manage just fine without you. 1 ; -2
- 21 Wow, it's so nice of you to offer to help. But (pause)
I ought to do it myself, I think. -1 ; 2
- 22 Oh yeah. You're right. Thanks. The last few weeks
have been tough on me. I guess I really might need a
vacation. -2 ; 1
- 23 Maybe someday I'll learn to be practical like you. I
didn't follow your little suggestion about, uh,
reserving seats for the concert in advance. Well,
when we got there it was sold out. -2 ; -1
- 24 I'm glad you made it. You're late again and you had
me worried. 2 ; -2
- 25 When I write a paper, I do an outline first. You
should try it. It'll help you too. 1 ; 1

Response:

Ratings

- 26 I'm sorry. I didn't realize I was in your way. I'll move to the side so you can see. Is that all right now? -2 ; 2
- 27 Hey, look, I've got two tickets for the concert on Saturday, and I decided to go home this weekend. You take them, and ask Jim, and have a good time. 2 ; 2
- 28 Look, I want to help, but it's impossible with you constantly interrupting. Now be patient! 2 ; -2
- 29 I'm sorry. I don't have any money now. But (pause) but, when I get paid next week, then I can lend you some money. -2 ; 1
- 30 Well, if you try to fix that you might get hurt. Let me take a look at it first. 3 ; 1
- 31 I've told you again and again to look behind you before you back up. Damn it, why won't you listen! 2 ; -3
- 32 Thanks so much for typing that paper for me. I don't know what I would have done without you. -3 ; 3
- 33 Well it is a nice car. I guess it helps to have a rich father. -2 ; -2
- 34 I didn't know you already had your plans made. Next time I'll call two weeks in advance. -2 ; -2
- 35 You look kind of sad. Let's go over to the Cambridge Inn and have something to eat and we'll talk about it. 1 ; 2
- 36 I'm really hungry. Don't you have anything to eat around here? 2 ; -2

IX. Situational Context of the Tapes to be Rated

A series of audio tapes were developed prior to this study. Each tape featured one stimulus figure and presented one side of a conversation between two people. The participants, including 44 male college students and 33 male psychiatric inpatients, conversed with each audio tape as if they were actually having a conversation with the person on the tape. Meanwhile, the participants' verbal responses were recorded on a second tape recorder.

The tapes you will be rating consist of the participants' responses to the stimulus tapes. These responses are grouped into sets containing a given participant's twelve responses to a specific audio tape. However, you will hear these sets in random order to make it difficult for you to determine whether the participant was a student or a patient, which stimulus figure he was talking with, or how he responded to the other tapes. This was done to prevent you from being overly influenced by these factors as you make your ratings.

The sets should be rated in the specified order, but you may listen to each conversation, or portion thereof, as many times as you like. If you wish, you can rate all the sets on one dimension before returning and rating them on the other dimension. In addition, you are encouraged to use the remaining responses within a set as cues to assist you in your ratings. Thus, for example, you could use the context of the entire conversation to help you determine whether a given statement is hostile or friendly, dominant or submissive.

To give you a better understanding of the social context in which these conversations occurred, some details of the experimental scene will now be provided.

First, the participants were told this study was concerned with how differences in people's behavior affect the way other people feel and behave. Each participant was instructed to imagine he was currently looking for a new job, but his reasons for looking and the fate of his old job were left for him to elaborate for himself. He was further instructed to imagine he was at a group picnic. This picnic would be followed by a softball game in which the participant would be the pitcher for his team. He was bringing some beer to share with the people there, but he himself specified the brand of beer, as well as its price and quality. He was also told he was arriving later than he planned, but was allowed to develop his own reasons for being late.

Following his arrival, each participant conversed with eight of his teammates. Although the participant was to assume he was acquainted with each of these men, and that he had played softball with them before, they were not close friends of his. The participant was further instructed to imagine these men were about the same age he was. Each conversation thus consisted of a dyadic interaction between two equal-status male acquaintances.

The topics of conversation included the participant's current job status and his efforts at securing a new one, the beer he provided, and his reasons for being late. Also included were remarks about fixing the hamburgers, the people at the picnic, and the upcoming game. On a more personal level, these conversations dealt with the participant's ability as a pitcher, his current psychological state, and his personal relationship with the stimulus figure.

Although many of the participants addressed the figures by name, the names they used were in many cases inaccurate and should not be regarded

as meaningful cues.

APPENDIX C

ADDITIONAL INSTRUCTIONS TO RATERS

Written by Karen Ann Sox

I. Introduction

Your first manual, "Instructions to Raters," provided general procedures for coding interpersonal behavior. These instructions extend that manual by discussing the specific cues associated with each of the coding categories. Since these cues are adapted to the situational context of the tapes you will be rating, they should facilitate the ease and consistency with which you make your ratings.

The participant's statement about his relationship with the receiver should always be given first priority in the coding of interpersonal behavior. Many times, however, especially in casual first encounters such as these, the participant will not address his or her feelings directly. At these times, the message must be examined carefully for indirect clues--first for clues regarding the basic relationship between participant and receiver--and second, for clues about the participant's relationship to the environment. These supplemental instructions are designed to be particularly helpful in choosing and examining these indirect clues. The clues, however, should be interpreted as indicators of the probable relationship and not as absolute rules. The direct statements must always be given primary consideration.

In addition, these instructions give more precise information for coding the intensity of the behaviors within each of the major categories.

II. Cues Associated with Dominant Behavior

The participant's tone of voice should be regarded as a strong indicator of the level of dominance, although the content plays a stronger role in the coding of dominant behavior than it does with the affiliative dimension. Responses which sound confident, assertive, forceful, or competitive in both their content and their affect should be coded as dominant.

Reasons for being late. May apologize for being late, but does so very matter-of-factly or with the awareness that others would feel disappointed and leaderless without him. Is not especially concerned about the disapproval of others for being late. May indicate why he was late, but in doing so, attempts to maximize his own control over the situation and to minimize the problems involved (e.g., "Yeah, I had a little problem. My car broke down in the middle of the freeway. . . ." "Well--you know

me--I'm always late. . ."). May attempt to reassure the other (e.g., "Don't worry, I wouldn't forget a game like this. . .") or criticize their expectations as unreasonable.

The beer. Expresses confidence about the beer (e.g., "It's a good beer . . .") "I'm sure you'll like it. . ."). Makes it clear that he is making his own decisions about whether to have a beer or how much to drink. Offers drinks to others.

The hamburgers. Specifies clearly what he wants, with the apparent assumption that the ingredients are all there and the other will carry out his instructions (e.g., "Rake it through the garden . . ." "Put onions and pickles on it . . ."). Again, he decides whether or not he will have one. Offers to help find buns or tells people where they can get one. Offers to help fix burgers or to give them to others.

Job status. If he is reluctant to talk about it, he indicates this by implying the other person was unreasonable in asking about it (e.g., "It's none of your damn business . . ."). Denies he's moving down in status as a result of being out of work or for any other reason (e.g., "I'm not in any trouble . . ."). Discusses his need for a new job in terms of his own control over things (e.g., "Oh, I'm just looking for something with better hours and more pay . . ."), and lets it be known that he can afford to be choosy (e.g., "Oh, I've got some money saved up. . ." "I'm not taking the first little two-bit job that comes along . . ."). Indicates he will make his own decisions about whether to accept a recommendation or use someone else's name to obtain a job (e.g., "No, I'd rather get the job on my own merit, not somebody's name . . ."). In discussing an impending interview or a possible job opportunity, he treats it as a situation in which he will be evaluating the employers (e.g., "Well, I'm talking to them on Monday, but right now, I don't know whether I want to work there or not. . ." "No, their benefits aren't good enough . . ."). May state that he enjoys job interviews and feels challenged by them.

Pitching. Claims he's the pitcher because he's good and indicates he does not need to be coached. May offer others the opportunity to pitch, but if so, it's because they've asked for it and being pitcher doesn't mean that much to him anyway. In negotiating these changes, he is not concerned about the approval of the remainder of the team.

The team. Views the team as being dependent on him (e.g., "Well, I figured the game wouldn't start without me . . ." "No, you're lucky I haven't missed the game. . ."). Feels free to evaluate the other team members. Emphasizes weakness in the opposing team (e.g., "This game won't be challenging at all . . ."). Looks forward to the game with confidence and/or competitive spirit. Is a starter and go-getter and may attempt to organize the game (e.g., "Let's start the game . . ." "I'm ready to play . . .").

Praise and criticism. Is confident and feels free to evaluate and/or criticize others. In general, he defends himself against criticism (e.g., "Well, at least I still pitch better than you . . ." "Yeah, but I was drunk last time too. . ."). If he agrees with somebody, he typically

does so by further extending what they just said (e.g., "Yeah, we wouldn't want to drink so much that we trip over the bases during the game. . ."). If he chooses to deflect praise, he does so by evaluating others (e.g., "Well, you're pretty good yourself, you know . . ."). If he accepts praise, he does so by noting his own experience (e.g., "Well, I've had a lot of experience, you know . . .").

General considerations. Inquires about the welfare of others, although not necessarily in a friendly way (e.g., "How are you?" "How are things going?" "Can I get you a burger while I'm at it?" "What are you so nervous about?" "Aren't you the one's who's tense? . . ."). May offer help or reassurance, enjoys giving advice, and enjoys telling other people what to do. Also enjoys it when other people imitate him (e.g., "Well, you've got good taste, then. . ."). Acknowledges the doubts of others (e.g., "Yeah, you'd probably thought you would have to pitch if I didn't come . . ."). "Don't worry, you know I always come . . ."), but also emphasizes his independence from others (e.g., "I'm sure you could have played just fine without me . . ."). [However, this statement would be coded submissive if it was paired with disparaging remarks about his own ability]].

Comments on the nervousness, depression, or gloomy mood of the other. However, he denies being tense, anxious, depressed, or in trouble himself. If he admits to feeling pressured, he also claims to be challenged by it. He may pose difficult questions or note inconsistencies as a way of establishing his own superiority (e.g., "If you hate picnics, then how come you always come?" "First you accuse me of wanting to get drunk, and now you say the beer is the only thing that's keeping you here!"). May express impatience with the other, tease the other, or use sarcasm in which the other is the victim (e.g., "Yeah, you probably would put all the wrong stuff on it--no, just kidding . . ."). May also make threats (e.g., "Don't come talking to me again . . ."). "I'm not too wishy-washy to punch you in the nose . . .").

Defines the situation for other people (e.g., "There's nothing to worry about . . ."). "There's lots of jobs out there . . ."). "It's not over, there's still lots of people here . . ."), or attempts to impose limits on their behavior (e.g., "If you won't share the burgers, then I won't share the beer . . ."). Also, may attempt to change the situation rather than accept things the way they are (for example, when told the burgers are cold, he may respond "Well, just heat them up again"). Tries to get the last word in when others appear to be terminating the conversation (e.g., "I understand you. I just can't understand why we can't have fun . . .").

III. Cues Associated with Submissive Behavior

The participant's tone of voice should be regarded as a strong indicator of the level of submission, although the content probably plays a stronger role in the coding of submissive behavior than it does with the affiliative dimension. Responses which sound anxious, indecisive, flat, depressed, hesitant, modest, timid, doubting, or shy should always be coded submissive, even when the content may be fairly dominant.

Reasons for being late. Apologizes for being late, sounds guilty about being late, and appears concerned about the possible disapproval it

may engender. Explains why he was late with an attitude of being apologetic or helpless about the situation which hindered his arrival (e.g., "I had to wait for my roommate and he's always slow . . ."). Admits to having had doubts about whether or not he would make it (e.g., "I'm glad I could make it . . ."). "I thought I'd never get here . . .").

The beer. Expresses doubts about the beer (e.g., "I hope I brought enough . . ."). "I hope you like it . . ."). Accepts offers of a beer from others. Doesn't necessarily think to offer other people a beer, but is compliant when they ask for one.

The hamburgers. May specify what he wants, but leaves room for changes and other possibilities (e.g., "I'd like it with ketchup if you have it . . ."). "Fix me a cheeseburger if it's not too much trouble"). May be indecisive about how it's fixed, or, he may indicate anything is acceptable (e.g., "I'll take whatever you have . . ."). Generally accepts a hamburger when it's offered.

Job status. If he is reluctant to talk about it, he indicates this by focusing on himself instead of the other person (e.g., "I really don't want to talk about it . . ."). Is inclined to disagree with the implication that he may be increasing his status with a new job (e.g., "Well, I don't know if I'm moving up in the world . . ."). Discusses the loss of his old job, or his current lack of a job, in terms of his own relative helplessness and lack of control over the situation (e.g., "The company went out of business . . ."). "I got fired . . ."). "I had to come to school . . ."). "Well, the economy's real bad right now and there aren't many jobs . . ."). Appreciates and/or naively accepts the offer of a recommendation or opportunity to use another person's name. In discussing an impending job interview or a possible job opportunity, he treats it as a situation in which he will be evaluated, and not vice versa (e.g., "Well, I have an interview next Monday, but I don't know whether they'll want to hire me or not"). May admit to feeling awkward and uncertain in job interviews. Inquires about the other's job with the hope of applying the information to himself (e.g., "Where do you work? Do they have any job openings there?").

Pitching. Is not confident about his pitching (e.g., "I don't know if I'm that good, but I try . . ."), and accepts coaching from other people. Claims it was other people who wanted him to pitch. Offers others the opportunity to pitch on the grounds that he really isn't that good at it anyway. In negotiating these changes, he notes that the changes need to be approved by the remainder of the team.

The team. Views himself as being dependent on the team (e.g., "Thanks, but my pitching's no good without the rest of you guys to back me up . . ."). Gives in to the evaluations and criticisms of his teammates (e.g., "Yeah, I'm really not very good at it . . ."). Emphasizes the toughness of the opposing team (e.g., "They'll be hard to beat . . .") and frequently predicts a difficult game. Looks to others to organize the game (e.g., "When's the game going to start? . . ."). "Well, hopefully, they'll start it pretty soon now . . .").

Praise and criticism. Accepts the evaluations and criticisms of others. Is less eager to critically appraise others and does so either indirectly or in a very global way. He may, however, express admiration, appreciation, disappointment, or resentment about the other's behavior. Is modest about himself (e.g., "Well, I'm not right all the time . . .") "Don't quote me on that . . ."). Deflects praise by emphasizing the help of others (e.g., "Thanks, but it's not just me--it's the whole team . . .") or underrating his own skill (e.g., "I'm not that good . . ."). When he accepts praise, he does so by expressing gratitude (e.g., "Thanks, I'm glad you liked it . . .") or noting the effort he put into it (e.g., "Well, I tried really hard at it . . .") "I've been practicing a lot . . .").

General considerations. Instead of inquiring about the welfare of others, he is more inclined to be on the receiving end of those inquiries, or to make inquiries which are self-relevant and center around his own role in things (e.g., "When does the game start?" "Do you have any advice on where I could find a job? . . ."). Accepts reassurance (e.g., "I hope you're right . . .") "I'm glad you think so . . ."), but is reluctant to reassure others (e.g., "Well--I don't know--I'll try . . .") "Do you know what he's depressed about? . . .").

Is uncomfortable giving advice, and if asked for it, he is likely to give a vague response, refer the person to a better expert, or give a response which is heavily qualified (e.g., "Maybe you should go see an employment counselor . . .") "Well, you really should ask other people too, because I don't know too much about it . . ."). Is suspicious when others imitate him (e.g., "You don't have to have your hamburger that way just because I am . . ."). Readily acknowledges the other's superior status, experience, and/or competence (even if it's not really true) and is easily impressed (e.g., "Oh, I didn't know you had connections there . . .").

Expresses doubts which implicitly acknowledge his dependency on others (e.g., "I was afraid you'd start the game without me . . ."). Readily expresses appreciation, thanks, agreement, gratitude, disappointment, and resentment. Also admits to feeling tense, anxious, depressed, frustrated, uncertain, tired, or pressured.

Accepts other people's definition of the situation (e.g., "Oh no, I guess I came too late . . ."), and does not attempt to change it (for example, when told the hamburgers are cold, he may respond "That's OK, I'm not hungry anyway . . ." or "I don't mind cold burgers . . ."). Complies when others attempt to terminate the conversation, although not necessarily cheerfully (e.g., "OK, if that's what you want . . .").

IV. Cues Associated with Friendly Behavior

The strongest cue here, especially with respect to intensity, is the participant's tone of voice. Responses which are understanding, sympathetic, warm, friendly, appreciative, optimistic, cooperative, or admiring are generally rated as friendly. They should always be coded as friendly when both the emotional tone and the content convey friendliness.

Reasons for being late. States he was looking forward to coming, or that he is glad to be there. Explanations of lateness are either positive or relatively neutral in affect along the affiliative dimension (e.g., "Oh, I just stopped to get the beer, that's all . . ."). May admit to

difficulty with directions, but indicates it's not the other person's fault. Is glad to get there before it's over.

The beer. Acts as if bringing the beer was his idea, or at least fair play (e.g., "Well, you guys brought the burgers, so I thought I should bring something . . ."). "Yeah, I thought you might be thirsty . . ."). Offers to share the beer readily. Expresses his expectation, or at least his hope, that others will like the beer.

Job status. Appears to appreciate inquiries about his job (or other aspects of himself) (e.g., "I'm glad you asked that . . ."). Expresses positive reasons for looking for a new job (e.g., "Oh, I'm just looking for more challenge, better pay . . ."). His reasons for losing his old job (if he has) are neutral (e.g., "I quit to come to school . . ."), or at least given with some sense of the employer's position (e.g., "They weren't getting enough work, so they had to lay me off . . ."). "I got fired when I forgot to turn the freezers back on and all the ice cream melted . . ."). Is optimistic about upcoming job interviews or possible openings. May indicate he has not been looking for a job very long yet.

Pitching. Offers others the opportunity to pitch if they want to, or if they don't feel he is doing a good enough job. The offers are warm and sincere, not daring or sarcastic. Notes that pitching is just one aspect of the game.

The team. Claims he likes the people at the picnic and the fellow members of his team. Emphasizes the need for team spirit and for the whole team to be working together. Encourages people to stay on the team and praises their abilities. Notes that his pitching has to be backed by the whole team to be effective. Sees virtues in the opposing team, even if he doesn't think they are as skilled as his team is. Expresses positive interest in the game (e.g., "I'm really looking forward to it . . .") "It should be a good game . . .").

Helping. Eager to help, although not necessarily to lead. Attempts to offer help, reassurance, positive advice, praise, etc., although he may not feel very skilled at it. Is patient when others repeatedly offer him things he doesn't want. Appreciates help, or at least the good intentions behind it. If he refuses help, he also acknowledges the nice thought behind it. When others suggest setting limits, he regards it as an expression of their concern for him (e.g., "You're right. I was planning to drink one now and then maybe a few more after the game").

Possibilities for future interactions. Appreciates invitations for further contact (e.g., "Sure, fishing sounds like a great idea . . ."). Invites the other to get together with him. Is conciliatory and tries to avoid letting interactions end on a sour note.

General considerations. Optimistic, trusting, warm, and considerate attitude. Concerned about the welfare of others and shows positive interest in them. Apologizes when it's appropriate (e.g., "Yeah, sorry I'm late . . ."). Often claims to be feeling good, or that things are going well. Expresses faith in other people (e.g., "Sure I'd keep you. You're

my friend . . ."), and may rely on them as valuable sources of information (e.g., "Do you know where I might be able to find a job?").

Responds to praise by returning praise (e.g., "Thanks, I'm glad to be on this team too . . ."). Disagrees with other people when they put themselves down. Readily expresses agreement and approval. If he disagrees, he continues to acknowledge the positive aspects of the other or what he or she did (e.g., "That's a really nice offer, but I'd rather try it on my own . . .").

Is sympathetic with other people's feelings (e.g., "You sound really down. What's wrong? . . .") and listens. Attempts to reassure or soothe other people's feelings (e.g., "I enjoy seeing you. It's just that I've been really busy lately . . ."). If he uses humor, he is generally the victim of it. Comments on the good weather.

V. Cues Associated with Hostile Behavior

As with friendliness, the strongest cue, especially with respect to intensity, is the participant's tone of voice. Responses which sound condescending, impatient, angry, frustrated, pessimistic, disappointed, or depressed should always be coded hostile. Also code hostile if the affect sounds flat or passive-aggressive, even if the content is neutral, polite, or slightly positive.

Reasons for being late. May note that he considered not coming, or that he doesn't like picnics. Explanations of lateness involve frustration and anger (e.g., "The damn car wouldn't start . . ." "Well, you guys told me to get the beer . . ."). May admit to difficulty in following directions, but implies it was because of the other person (e.g., "The directions were sure hard to follow . . ."). Is angry about being late.

The beer. Acts as if he is bringing the beer just because others told him to. May express reluctance about sharing it or tease people who ask for it. Conveys his expectation that others will not like it (e.g., "It's not good, but at least it was cheap . . ." "If you don't like it, you don't have to drink it . . ." "Sure, go ahead, but a lot of people said they didn't like it . . .").

Job status. Appears to resent inquiries about his job (or other aspects of himself) in the first place (e.g., "It's none of your damn business . . ." "Well, what did you want to ask about it? . . ."). His reason for losing or terminating his job involves anger (e.g., "I couldn't get along with my boss." "I got sick and got replaced . . ." "I got fired . . ."). Emphasizes problems and frustrations in looking for a new job (e.g., "Nobody wants to hire right now . . ." "I'm out beating the pavement again . . ."). Is pessimistic about job interviews and possible openings. Makes it clear that he won't just work for anybody (e.g., "I'm not going to take the first little two-bit job that comes along . . ." "Not them. Their benefits are lousy . . .").

Pitching. Is defensive and makes excuses for poor performance (e.g., "Well, I was drunk last time . . ." "But I'm still better than you . . ."). Is not sympathetic when others want to pitch. Dares them to pitch.

The team. Is critical of the team, especially certain members, whom he encourages to leave. Also critical of the opponents. Claims some of the people at the picnic are really messed up.

Helping. Is not eager to offer help and seems to feel impatient or frustrated with people who ask for it. Gets impatient when others offer things he doesn't want. Accepts help grudgingly (e.g., "Well, if you really want to do it, go ahead . . ."). Refuses help readily and with no explicit recognition of the other's kind intentions. When others suggest setting limits, he seems to feel they are accusing him of being incompetent (e.g., "I know when I've had enough to drink . . .").

Possibilities for future interactions. Makes excuses for not having further contact (e.g., "Thanks, but I really don't like fishing . . ."). Indicates he will not seek the other out (e.g., "Well, don't hold your breath . . ."). Lets interactions end on a sour note. May indicate strong dislike, ask to be left alone, or threaten physical violence.

General considerations. Pessimistic, distrusting, and/or passive-aggressive attitude. Critical and suspicious of others; may be critical of himself as well. Often claims to be feeling lousy or that things are not going well. Criticizes the expectations of others instead of apologizing for his own behavior (e.g., "Don't blame me. It's not my fault . . ."). Indicates the other's possible virtues will have to be tested (e.g., "I don't know, I'd have to see how you worked first . . ."). Distrusts praise.

Agrees with others when they put themselves down. Otherwise, readily expresses disagreement. Agreement is reluctant and often heavily qualified (e.g., "If you say so . . ."). Criticizes inconsistencies in others (e.g., "If you hate picnics, then why do you always come?"). Teases others and makes them the object of sarcasm. Shows little understanding of feelings, instead, he orders people to cheer up (e.g., "Boy, you really are down. Come on, cheer up . . ."). Acts as if other people's ideas are off base (e.g., "Where did you get that idea from?"). Accuses others of projection (e.g., "Aren't you the one who's tense? . . ."). Asks questions which imply criticism (e.g., "Just because you didn't get a hamburger bun you think people are dishonest? . . ." "I'm talking to you now, aren't I? . . ."). Tries to "one up" people (e.g., "That's because I'm a better pitcher than you . . .") or employs "yes, but" statements (e.g., "I like talking to you, but I sure wish you'd cheer up . . .").

VI. Coding for Intensity--The Power Dimension

+3 rating--strong assumption of dominance and superior status. Assumes the role of a parent, cultural hero, or bully toward a child, admiring fan, or potential victim. Attempts to give orders, control, direct, manage, rule, discipline, intimidate, or exploit the recipient, although these attempts may or may not be successful. May be benevolent, nurturing, paternal, protective, authoritarian, snobbish, domineering, threatening, or abusive. Assumes an obvious attitude of superiority toward one who is regarded as inferior in some essential respect. Attempts to define the situation for other people, to determine what they will and will not do. Expects his superiority to be acknowledged.

+2 rating--moderate assumption of dominance and superior status.

Assumes the role of an older sibling, teacher, or strong competitive opponent with a younger sibling, adult pupil, or relatively weaker rival. Attempts to evaluate, criticize, lead, influence, instruct, inform, advise, guide, encourage, help, reassure, reject, insult, outwit, show superior skills, or compete with the other, although the attempts may or may not be successful. May be patient, approving, reassuring, assertive, competitive, rejecting, impatient, or disapproving. Acts knowledgeable, assertive, confident, independent, and competent.

Makes inquiries, but not for advice or suggestions. Gives advice and directions, evaluates others, and is quick to offer his opinion as the way things should be. Attempts to change the situation, but is willing to do so within previously established rules. Attempts to explain the situation to others, but not to determine how they should behave. Expects others to listen and respect him.

+1 rating--mild assumption of dominance and superior status.

Assumes the role of an equal-status other who is more skilled or knowledgeable about the current area of concern. Offers suggestions, help, instructions, helpful explanations, opinions, comments, or extraneous remarks--all of which may be either friendly or unfriendly. May also offer tangible things, such as drinks or hamburgers. May be warm, sympathetic and understanding, or cold, businesslike, and disapproving.

Assumes an air of independence; he makes his own decisions. Does not necessarily follow the advice of others, nor does he expect others to always comply with his. Explains the situation to others, but in doing so, manages to convey the impression that he is capable of managing things for himself. Apparently expects to be treated as a self-sufficient human being.

0 rating--assumption of complete equality.

Bland. The participant assumes a status of complete equality, or fails to provide any cues regarding his perception of his current or intended status.

-1 rating--mild assumption of submission and inferior status.

Assumes the role of an equal-status other who is less skilled or knowledgeable about the current area of concern. Requests or accepts concrete suggestions, help, instructions, helpful explanations, or tangible items such as drinks or hamburgers. These requests and acceptances, however, are not necessarily carried out in a friendly manner. Complies (however reluctantly) with reasonable and easily fulfilled requests, answers questions about himself, apologizes appropriately, and listens to others. Can be cooperative, tolerant, and neighborly; or irritable, moody, and skeptical.

Responses which are mixed--for example, the content is dominant but the affect is definitely submissive--also fall into this category. The participant may appear indecisive and doubting, as if he is not quite sure of himself or is doing something for the first time. He may also attempt to explain his situation to others, to offer suggestions, make requests, or give opinions, but in doing so, he is usually trying to fulfill a request on the part of the other. Furthermore, the attempts are qualified and/or presented with an air of uncertainty. He is also prone to under-rate his own skill.

-2 rating--moderate assumption of submission and inferior status.

Assumes the role of a younger sibling, adult pupil, or relatively weaker competitive opponent in relation to an older sibling, teacher, or stronger rival. Allows, asks for, or expects others to lead, influence, reassure, help, instruct, inform, guide, advise, evaluate, criticize, reject, insult, show superior skills, or outwit him. The attempts to induce others into this behavior, however, may or may not be successful. May be trusting, appreciative, approval-seeking, respectful, modest, apologetic, easily disappointed, confused, indecisive, easily persuaded, frustrated, rebellious, or resentful.

Complies with requests, even when they are somewhat unreasonable or difficult to fulfill. Answers questions about himself even when he is clearly reluctant to do so. Generally, he does not question the advice, criticisms, evaluations, and opinions of others, even when he secretly disagrees. If he does question it, it is never with the feeling that he will be successful in persuading the other, but with bitter complaining. Looks to others to explain and interpret the situation to him, but not to dictate his behavior. May complain about the situation, but does not make any serious attempts to change it.

-3 rating--strong assumption of submission and inferior status.

Assumes the role of a child, admiring fan, or victim coping with a parent, cultural hero, or bully. Expresses passivity, dependency, helplessness, despondent depression, obedience, fearfulness, ingratiation, guilt, admiration, or a need for nurturance and protection. Is timid, anxious, tense, and hesitant. Assumes others are definitely superior in some essential way. Looks to others to define the situation and/or decide what he is to do. Expects or allows others to control, direct, reward, or punish his own behavior.

VII. Coding for Intensity--The Affiliative Dimension

+3 rating--strong emotional flavor and positive evaluation. Desire for continued positive and friendly relationship is obvious. Participant has strong positive feelings toward the recipient and wants to share them. Direct, open, and sincere expression of appreciation, admiration, respect, generosity, or caring.

+2 rating--moderate to marked emotional flavor and positive evaluation. Expression of positive evaluation or feelings, but these feelings are expressed less directly and/or there is less desire for a continued positive relationship. Moderately warm, positive, and friendly emotional tone. The participant behaves in a way which is warm, optimistic, considerate, cooperative, thoughtful, neighborly, or appreciative. Includes efforts to soothe or reassure the other person's feelings, offering or accepting advice, praise, optimism, and sincere apologies.

+1 rating--without marked emotional flavor and mildly positive evaluation. Positive feeling and emotional tone, but not necessarily a commitment to a continued positive relationship. Involves expected, but sincere politeness which is conveyed by both the emotional tone and the content of the response. Also includes positive suggestions, obedience, explanations, instructions, agreement, bland apologies or thanks, and

expected cooperation and consideration. The participant may offer limited praise or indicate his availability for future social interactions.

0 rating--no emotional flavor or discernible evaluation. The response is bland in both content and affect, or it is sufficiently mixed as to produce a very bland result.

-1 rating--without marked emotional flavor and mildly negative evaluation. Includes mild distrust, mild criticism, mild irritation, miscommunication, or reluctance. The possibility for a friendly relationship frequently (although not always) is still present. The hostility is frequently expressed only indirectly, and may be heard only in the emotional tone rather than the content of the response. Includes constructive criticism, verbal or nonverbal reluctance, humor (but not sarcasm), or even politeness if it carries a flat or passive-aggressive emotional undertone. Also frequently involves "yes, but" statements, the expression of doubts about the other person, or the polite rejection of the other's invitation. The object of the hostility will frequently be a third person or outside situation, for example, the participant's former employer or the traffic that hindered his arrival. The participant's feelings range from mild hostility to affection, and he wants to convey reluctance, mild irritation, or a desire for change.

-2 rating--moderate to marked emotional flavor and negative evaluation. Includes resentment, impatience, suspiciousness, competition, irritability, and criticism. Also includes professed indifference, rebellion, disappointment, and moodiness. Frequently involves nonconstructive criticism. The participant is frustrated, irritated, or wants to convey his disagreement or lack of respect. The other may change, but the current behavior is definitely regarded as unacceptable.

-3 rating--strong emotional flavor and negative evaluation. Includes threats of physical violence, both direct and indirect. Also includes strong animosity, sarcastic belligerence, ridicule, berating, or orders to be left alone. There is no apparent possibility for establishing a friendly relationship. The response frequently incorporates swearing. The participant is angry, wants to inflict pain, or believes the other deserves contempt. The other is perceived as excessively nasty or weak and unlikely to change.

APPENDIX D

INTRACLASSE CORRELATION ANALYSES OF INTERRATER AGREEMENT: ADDITIONAL TABLES AND DATA

Table 46

Affiliative Analysis Based on Standardized Ratings
of the Second and Last Tapes

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	1106.56	83	13.33	9.58	<.001
Resp./sets ^a	1043.44	924	1.13	3.45	<.001
Coders	0	2	0		
Sets X coders	230.97	166	1.39	4.25	<.001
Resp./sets X coders ^a	605.02	1848	.33		
Total	2986.00	3023			

Affiliative intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Sets	.741	83, 166	1.41	9.47	<.001
Resp./sets ^a	.449	924, 1848	.33	3.45	<.001

Note. The analyses in this table were based on data in which each coder's ratings were converted to a z score distribution. The means and standard deviations which formed the basis of these conversions were derived from that coder's ratings of the 84 sets these analyses were based on. These sets were identical for all three coders and included all the sets in the second and last tapes that each coder evaluated.

^aResp./sets = responses nested within sets.

Table 47

Power Analysis Based on Standardized Ratings
of the Second and Last Tapes

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	1089.41	83	13.13	4.40	<.001
Resp./sets ^a	742.93	924	.80	2.26	<.001
Coders	0	2	0		
Sets X coders	495.65	166	2.99	8.39	<.001
Resp./sets X coders ^a	658.02	1848	.36		
Total	2986.00	3023			

Power Intraclass Correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Sets	.530	83, 166	3.02	4.34	<.001
Resp./sets ^a	.295	924, 1848	.36	2.26	<.001

Note. The analyses in this table were based on data in which each coder's ratings were converted to a z score distribution. The means and standard deviations which formed the basis of these conversions were derived from that coder's ratings of the 84 sets these analyses were based on. These sets were identical for all three coders and included all the sets in the second and last tapes that each coder evaluated.

^aResp./sets = responses nested within sets.

Table 48

Analysis Based on Transformed Ratings of the Second Tape

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	96.42	41	2.35	9.22	<.001
Coders	3.17	2	1.58	6.21	<.01
Sets X coders	20.92	82	.26		
Total	120.50	125			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	81.39	41	1.99	4.23	<.001
Coders	14.19	2	7.10	15.12	<.001
Sets X coders	38.47	82	.47		
Total	134.06	125			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.704	41, 82	.26	8.99	<.001
Power	.440	41, 82	.48	4.13	<.001

Table 49

Analysis Based on Transformed Ratings of the Last Tape

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	92.02	41	2.24	10.52	<.001
Coders	1.99	2	.99	4.66	<.025
Sets X coders	17.49	82	.21		
Total	111.50	125			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	89.21	41	2.18	4.95	<.001
Coders	3.81	2	1.90	4.33	<.025
Sets X coders	36.05	82	.44		
Total	129.07	125			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.740	41, 82	.22	10.26	<.001
Power	.542	41, 82	.45	4.83	<.001

Table 50

Analysis Based on Transformed Ratings of the Students

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	106.75	47	2.27	9.01	<.001
Coders	1.58	2	.79	3.13	<.05
Sets X coders	23.70	94	.25		
Total	132.02	143			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	96.87	47	2.06	4.14	<.001
Coders	6.55	2	3.27	6.58	<.005
Sets X coders	46.74	94	.50		
Total	150.16	143			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.714	47, 94	.26	8.82	<.001
Power	.478	47, 94	.51	4.06	<.001

Table 51
Analysis Based on Transformed Ratings of
Students on the Second Tape

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	60.13	23	2.61	9.45	<.001
Coders	1.25	2	.62	2.25	n.s.
Sets X coders	12.73	46	.28		
Total	74.10	71			

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	48.49	23	2.11	4.17	<.001
Coders	8.99	2	4.50	8.89	<.001
Sets X coders	23.25	46	.51		
Total	80.73	71			

Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.719	23, 46	.29	9.04	<.001
Power	.432	23, 46	.53	3.99	<.001

Table 52

Analysis Based on Transformed Ratings of
Students on the Last Tape

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	45.56	23	1.98	8.43	<.001
Coders	.49	2	.25	1.05	n.s.
Sets X coders	10.81	46	.23		
Total	56.86	71			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	47.90	23	2.08	4.93	<.001
Coders	1.60	2	.80	1.89	n.s.
Sets X coders	19.45	46	.42		
Total	68.94	71			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.702	23, 46	.25	8.06	<.001
Power	.545	23, 46	.44	4.71	<.001

Table 53
Analysis Based on Transformed Ratings of the Patients

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	78.83	35	2.25	10.56	<.001
Coders	3.36	2	1.68	7.86	<.001
Sets X coders	14.93	70	.21		
Total	97.12	107			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	73.27	35	2.09	4.27	<.001
Coders	4.91	2	2.46	5.01	<.01
Sets X coders	34.33	70	.49		
Total	112.51	107			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.723	35, 70	.22	10.26	<.001
Power	.486	35, 70	.50	4.15	<.001

Table 54

Analysis Based on Transformed Ratings of
Patients on the Second Tape

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	35.74	17	2.10	8.86	<.001
Coders	2.04	2	1.02	4.30	<.025
Sets X coders	8.07	34	.24		
Total	45.85	53			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	31.12	17	1.83	4.11	<.001
Coders	5.27	2	2.63	5.91	<.01
Sets X coders	15.16	34	.45		
Total	51.55	53			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.677	17, 34	.25	8.34	<.001
Power	.432	17, 34	.47	3.86	<.001

Table 55
Analysis Based on Transformed Ratings of
Patients on the Last Tape

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	43.07	17	2.53	13.68	<.001
Coders	1.88	2	.94	5.08	<.025
Sets X coders	6.30	34	.19		
Total	51.25	53			

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	41.18	17	2.42	4.99	<.001
Coders	2.32	2	1.16	2.39	n.s.
Sets X coders	16.50	34	.49		
Total	60.00	53			

Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.766	17, 34	.20	12.88	<.001
Power	.536	17, 34	.52	4.70	<.001

Table 56
 Analysis Based on Transformed Ratings of
 Responses to Figure 1

Affiliative analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	8.90	9	.99	5.12	<.01
Coders	.48	2	.24	1.25	n.s.
Sets X coders	3.48	18	.19		
Total	12.85	29			

Power analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	6.04	9	.67	2.25	<.10
Coders	2.11	2	1.06	3.53	<.025
Sets X coders	5.38	18	.30		
Total	13.53	29			

Intraclass correlations

Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.539	9, 18	.22	4.55	<.01
Power	.215	9, 18	.34	2.00	n.s.

Table 57
 Analysis Based on Transformed Ratings of
 Responses to Figure 2

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	10.94	10	1.09	5.23	<.001
Coders	.09	2	.04	.21	n.s.
Sets X coders	4.18	20	.21		
Total	15.21	32			

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	9.69	10	.97	1.77	n.s.
Coders	2.92	2	1.46	2.67	n.s.
Sets X coders	10.94	20	.55		
Total	23.56	22			

Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.572	10, 20	.23	4.71	<.01
Power	.149	10, 20	.61	1.59	n.s.

Table 58
Analysis Based on Transformed Ratings of
Responses to Figure 3

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	10.01	10	1.00	5.21	<.001
Coders	.20	2	.10	.53	n.s.
Sets X coders	3.84	20	.19		
Total	14.05	32			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	23.03	10	2.30	5.87	<.001
Coders	.25	2	.12	.32	n.s.
Sets X coders	7.85	20	.39		
Total	31.13	32			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.563	10, 20	.21	4.69	<.01
Power	.604	10, 20	.44	5.28	<.001

Table 59

Analysis Based on Transformed Ratings of
Responses to Figure 4

Affiliative analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	5.75	10	.57	2.92	<.025
Coders	1.48	2	.74	3.76	<.05
Sets X coders	3.93	20	.20		
Total	11.16	32			

Power analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	16.29	10	1.63	4.04	<.01
Coders	.84	2	.42	1.04	n.s.
Sets X coders	8.07	20	.40		
Total	25.20	32			

Intraclass correlations

Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.309	10, 20	.22	2.63	<.05
Power	.469	10, 20	.45	3.63	<.01

Table 60
Analysis Based on Transformed Ratings of
Responses to Figure 5

Affiliative analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	18.09	9	2.01	8.51	<.001
Coders	1.67	2	.83	3.53	<.10
Sets X coders	4.25	18	.24		
Total	24.02	29			

Power analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	26.36	9	2.93	8.37	<.001
Coders	2.74	2	1.37	3.92	<.01
Sets X coders	6.30	18	.35		
Total	35.41	29			

Intraclass correlations

Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.643	9, 18	.27	7.56	<.001
Power	.632	9, 18	.39	7.44	<.001

Table 61
Analysis Based on Transformed Ratings of
Responses to Figure 6

Affiliative analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	23.38	9	2.60	10.57	<.001
Coders	1.96	2	.98	3.98	<.025
Sets X coders	4.42	18	.25		
Total	29.76	29			

Power analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	18.02	9	2.00	3.59	<.025
Coders	5.85	2	2.93	5.24	<.01
Sets X coders	10.05	18	.56		
Total	33.93	29			

Intraclass correlations

Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.691	9, 18	.28	9.40	<.001
Power	.348	9, 18	.63	3.19	<.025

Table 62
Analysis Based on Transformed Ratings of
Responses to Figure 7

Affiliative analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	10.82	9	1.20	3.72	<.01
Coders	2.20	2	1.10	3.40	<.025
Sets X coders	5.83	18	.32		
Total	18.85	29			

Power analysis of variance summary table

Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	16.59	9	1.84	5.18	<.01
Coders	12.30	2	6.15	17.28	<.001
Sets X coders	6.41	18	.36		
Total	35.30	29			

Intraclass correlations

Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.390	9, 18	.36	3.30	<.025
Power	.330	9, 18	.40	4.60	<.01

Table 63
Analysis Based on Transformed Ratings of
Responses to Figure 8

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	12.72	10	1.27	7.63	<.001
Coders	2.22	2	1.11	6.65	<.01
Sets X coders	3.33	20	.17		
Total	18.27	32			
Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Sets	16.46	10	1.65	3.95	<.01
Coders	2.19	2	1.09	2.63	<.10
Sets X coders	8.33	20	.42		
Total	26.97	32			
Intraclass correlations					
Dimension	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
Affiliative	.574	10, 20	.19	6.87	<.001
Power	.431	10, 20	.46	3.56	<.01

Table 64
Affiliative Subsample Means and Standard
Deviations for Each Coder

Subsample	<u>n</u> ^a	Coder 1		Coder 2		Coder 3	
		Mean	<u>SD</u> ^b	Mean	<u>SD</u> ^b	Mean	<u>SD</u> ^b
All participants:							
Second tape	42	-.18	1.12	-.25	1.02	.12	.76
Last tape	42	.04	.75	-.19	1.16	.10	.87
Second and last tapes	84	-.07	.96	-.22	1.08	.11	.81
Students:							
Second tape	24	-.11	1.20	-.17	1.09	.14	.74
Last tape	24	.14	.79	.02	1.11	.22	.77
Second and last tapes	48	.01	1.01	-.07	1.09	.18	.75
Patients:							
Second tape	18	-.28	1.03	-.36	.94	.09	.80
Last tape	18	-.10	.71	-.47	1.19	-.05	.99
Second and last tapes	36	-.19	.87	-.41	1.06	.02	.89

Note. These means and standard deviations are based on the transformed data scores.

^aNumber of sets of data.

^bStandard deviation.

Table 65
Power Subsample Means and Standard
Deviations for Each Coder

Subsample	<u>n</u> ^a	Coder 1		Coder 2		Coder 3	
		Mean	<u>SD</u> ^b	Mean	<u>SD</u> ^b	Mean	<u>SD</u> ^b
All participants:							
Second tape	42	.49	1.01	-.25	1.00	-.19	.95
Last tape	42	.09	.92	-.21	1.24	.20	.82
Second and last tapes	84	.29	.98	-.23	1.12	.00	.91
Students:							
Second tape	24	.61	1.00	-.18	1.07	-.09	.98
Last tape	24	.05	.85	-.20	1.22	.15	.84
Second and last tapes	48	.33	.96	-.19	1.14	.03	.91
Patients:							
Second tape	18	.32	1.03	-.36	.91	-.33	.91
Last tape	18	.15	1.02	-.22	1.30	.27	.82
Second and last tapes	36	.23	1.02	-.29	1.11	-.03	.91

Note. These means and standard deviations are based on the transformed data scores.

^aNumber of sets of data.

^bStandard deviation.

Table 66
Means and Standard Deviations of Each Coder's
Ratings of Responses to Each Figure

Figure	n	Coder 1		Coder 2		Coder 3	
		Mean	SD	Mean	SD	Mean	SD
Affiliative dimension							
1	10	.71	.65	.93	.91	.62	.37
2	11	.39	.67	.31	.90	.44	.50
3	11	.42	.41	.38	1.00	.57	.46
4	11	.35	.54	-.04	.69	.46	.45
5	10	-.09	.66	-.46	1.07	.11	.95
6	10	-.50	.82	-1.05	1.15	-.50	1.05
7	10	-1.40	1.05	-1.12	.47	-.74	.73
8	11	-.57	.87	-.78	.59	-.16	.71
Power dimension							
1	10	-.66	.54	-.61	.73	-.07	.67
2	11	-.57	.76	-.86	.98	-.14	.72
3	11	-.05	.50	-.04	1.19	-.23	1.20
4	11	.21	.60	-.08	1.12	-.16	.91
5	10	.74	.97	.06	1.33	.15	.95
6	10	.64	.72	-.32	1.14	-.28	1.14
7	10	1.67	.70	.18	1.14	.51	.88
8	11	.45	.82	-.16	1.18	.28	.62

Note. These statistics are based on the transformed data scores.

APPENDIX E

HYPOTHESES 1 AND 2: THE WITHIN STUDENTS AND WITHIN PATIENTS ANALYSES

A Note of Caution

In addition to the analyses with all participants, which are presented in Chapters 10 and 11, the data were analyzed for the students and patients separately. This was done to make comparisons between the two samples and to check the generalizability of the results. As in the analyses with all participants, the behavior ratings assigned by any particular coder or combination of coders were transformed to a mean of 0 and a standard deviation of 1.00. This allowed the ratings assigned by different coders to be compared directly with one another. The transformed ratings were then utilized as the measure of interpersonal behavior.

The means and standard deviations used to transform each coder's ratings were derived only from the sample which was being considered in the subsequent analysis. For the analyses with all participants, they were based on the ratings of all participants. But for the within students and within patients analyses, they were derived only from the sets of data which were in that sample. This meant the values used to transform the ratings of the students, for example, were not identical to those in the all participants or within patients analyses. As a result, the behavior means and standard deviations, as well as the corresponding deviation scores, are not directly comparable from one type of analysis to another.

While the tables presented in this appendix can provide information about the trends within each sample, they are not valid for comparing the behavior or deviation scores of one sample with those of the other. This later information can be gained from the discussion and tables in Chapters 10 and 11.

Table 67
Hypothesis 1.a: Within Students Analysis
on the Affiliative Dimension

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	<u>F</u> ratio	prob.
Subjects	40.83	43	.95	.56	n.s.
Figures/subjects	1100.47	308	3.52	2.93	<.001
Measures	6.11	1	6.11		
Subjects X measures	73.55	43	1.71		
Fig./subj. X meas.	370.65	308	1.20		
Total	1591.61	703			
Affiliative intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	<u>F</u> ratio	prob.
<u>ICC</u> _G	-.308	43, 43	1.79	6.44 ^a	<.001
<u>ICC</u> _{F/S}	.494	308, 308	1.21	2.95	<.001

^aIn order to facilitate the subsequent tests for statistical significance, this F ratio was inverted. The corrected residual mean square was divided by the corresponding subjects mean square whenever the intraclass correlation coefficient was negative. See Chapter 10 for additional details.

Table 68

Hypothesis 1.a: Within Patients Analysis
on the Affiliative Dimension

Affiliative analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Subjects	101.54	32	3.17	2.49	<.01
Figures/subjects	871.65	231	3.54	3.08	<.001
Measures	10.77	1	10.77		
Subjects X measures	40.75	32	1.27		
Fig./subj. X meas.	265.90	231	1.15		
Total	1236.61	527			
Affiliative intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio	prob.
ICC_G	.401	32, 32	1.36	2.34	<.025
$ICC_{F/S}$	.506	231, 231	1.16	3.05	<.001

Table 69

Hypothesis 1.b: Within Students Analysis
on the Power Dimension

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Subjects	84.65	43	1.97	.60	n.s.
Figures/subjects	462.20	308	1.50	.68	n.s.
Measures	.00	1	.00		
Subjects X measures	141.89	43	3.30		
Fig./subj. X meas.	680.58	308	2.21		
Total	1369.31	703			
Power intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	F ratio ^a	prob.
<u>ICC_G</u>	-.275	43, 43	3.46	1.76	<.05
<u>ICC_{F/S}</u>	-.194	308, 308	2.22	1.48	<.01

^aIn order to facilitate the subsequent tests for statistical significance, these F ratios were inverted. The corrected residual mean squares were divided by the corresponding subjects mean squares whenever the intraclass correlation coefficients were negative. See Chapter 10 for additional details.

Table 70
Hypothesis 1.b: Within Patients Analysis
on the Power Dimension

Power analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	<u>F</u> ratio	prob.
Subjects	95.13	32	2.97	.64	n.s.
Figures/subjects	318.01	231	1.38	.76	n.s.
Measures	1.00	1	1.00		
Subjects X measures	148.02	32	4.63		
Fig./subj. X meas.	418.70	231	1.81		
Total	980.87	527			
Power intraclass correlations					
Source	Intraclass correlation	Degrees of freedom	Corrected residual mean square	<u>F</u> ratio ^a	prob.
<u>ICC</u> _G	-.248	32, 32	4.93	1.66	<.10
<u>ICC</u> _{F/S}	-.141	231, 231	1.83	1.33	<.05

^aIn order to facilitate the subsequent tests for statistical significance, these F ratios were inverted. The corrected residual mean squares were divided by the corresponding subjects mean squares whenever the intraclass correlation coefficients were negative. See Chapter 10 for additional details.

Table 71

Hypothesis 1: Within Students Means and Standard Deviations on Perception and Behavior

Figure	Actual stimulus figure coordinate	Perception		Behavior	
		Mean	Standard deviation	Mean	Standard deviation
Affiliative dimension					
1	.09	1.29	.94	.52	.73
2	.90	2.10	.68	.49	.72
3	.99	2.28	.62	.51	.62
4	.57	1.48	.56	.37	.73
5	-.18	-.19	1.05	.23	.82
6	-.82	-1.39	.87	-.31	.88
7	-.98	-2.31	.62	-1.38	.85
8	-.57	-1.77	.60	-.43	.86
Power dimension					
1	.99	1.78	.62	-.49	.92
2	.43	.91	1.01	-.42	.93
3	-.05	.55	1.10	-.09	.97
4	-.82	-1.71	.87	.10	.78
5	-.98	-2.32	.58	.38	.81
6	-.57	-1.39	.92	.25	.99
7	.18	.63	.93	.35	1.17
8	.82	1.53	.82	-.07	1.02

Table 72

Hypothesis 1: Within Patients Means and Standard Deviations on Perception and Behavior

Figure	Actual stimulus figure coordinate	Perception		Behavior	
		Mean	Standard deviation	Mean	Standard deviation
Affiliative dimension					
1	.09	1.47	1.34	.65	.63
2	.90	2.01	.89	.56	.67
3	.99	2.22	.89	.62	.53
4	.57	1.32	.94	.23	.57
5	-.18	.27	.96	-.07	1.01
6	-.82	-1.24	1.16	-.06	.80
7	-.98	-2.35	.71	-1.05	.98
8	-.57	-1.44	1.28	-.38	1.10
Power dimension					
1	.99	1.30	1.11	-.35	.87
2	.43	.64	1.22	-.35	1.04
3	-.05	1.20	1.01	-.05	.86
4	-.82	-1.38	1.18	-.01	.92
5	-.98	-2.04	.93	.11	1.11
6	-.57	-1.07	.97	.16	.98
7	.18	-.05	1.59	.46	.91
8	.82	.72	1.30	.03	1.09

Table 73
Hypothesis 2.a: Within Students Affiliative
Mean Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	138.55	7	19.79	44.53	<.001
Subjects	75.66	43	1.76	3.96	<.001
Figures X subjects	133.79	301	.44		
Total	348.00	351			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	97.23	1	97.23	139.02	<.001
Comparison X subjects	30.07	43	.70		

Note. r^2 comparison = .702.

Table 74
Hypothesis 2.a: Within Patients Affiliative
Mean Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	90.49	7	12.93	30.82	<.001
Subjects	75.54	32	2.36	5.63	<.001
Figures X subjects	93.97	224	.42		
Total	260.00	263			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	73.55	1	73.55	116.81	<.001
Comparison X subjects	20.15	32	.63		

Note. r^2 comparison = .813.

Table 75
Hypothesis 2.b: Within Students Affiliative
Deviation Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	1.89	7	.27	1.26	n.s.
Subjects	14.06	43	.33	1.52	n.s.
Figures X subjects	64.67	301	.21		
Total	80.62	351			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	1.64	1	1.64	6.64	<.025
Comparison X subjects	10.62	43	.25		

Note. r^2 comparison = .868.

Table 76
Hypothesis 2.b: Within Patients Affiliative
Deviation Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	7.98	7	1.14	5.19	<.001
Subjects	15.12	32	.47	2.15	<.01
Figures X subjects	49.18	224	.22		
Total	72.29	263			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	5.03	1	5.03	20.69	<.001
Comparison X subjects	7.78	32	.24		

Note. r^2 comparison = .630.

Table 77
Hypothesis 2.c: Within Students Power
Mean Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	33.82	7	4.83	10.02	<.001
Subjects	168.97	43	3.93	8.15	<.001
Figures X subjects	145.21	301	.48		
Total	348.00	351			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	18.17	1	18.17	41.31	<.001
Comparison X subjects	18.91	43	.44		

Note. r^2 comparison = .537.

Table 78
Hypothesis 2.c: Within Patients Power
Mean Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Figures	16.34	7	2.33	5.28	<.001
Subjects	144.64	32	4.52	10.23	<.001
Figures X subjects	99.02	224	.44		
Total	260.00	263			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	F ratio	prob.
Comparison	2.84	1	2.84	4.63	<.05
Comparison X subjects	19.59	32	.61		

Note. r^2 comparison = .174.

Table 79

Hypothesis 2.d: Within Students Power
Deviation Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	<u>F</u> ratio	prob.
Figures	3.90	7	.56	2.13	n.s.
Subjects	26.80	43	.62	2.38	<.001
Figures X subjects	78.95	301	.26		
Total	109.66	351			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	<u>F</u> ratio	prob.
Comparison	1.11	1	1.11	4.47	<.05
Comparison X subjects	10.66	43	.25		

Note. \underline{r}^2 comparison = .284.

Table 80
Hypothesis 2.d: Within Patients Power
Deviation Score Analysis

Analysis of variance summary table					
Source	Sum of squares	Degrees of freedom	Mean square	<u>F</u> ratio	prob.
Figures	1.58	7	.23	.89	n.s.
Subjects	32.39	32	1.01	3.97	<.001
Figures X subjects	57.04	224	.25		
Total	91.00	263			
Planned comparison analysis					
Source	Sum of squares	Degrees of freedom	Mean square	<u>F</u> ratio	prob.
Comparison	.03	1	.03	.09	n.s.
Comparison X subjects	9.43	32	.29		

Note. r^2 comparison = .018.

Table 81

Hypothesis 2: Affiliative and Power Means
for the Within Students Analyses

Figure	Affiliative dimension			Power dimension		
	Actual ^a stimulus coordinate	Mean behavior score	Mean deviation score	Actual ^a stimulus coordinate	Mean behavior score	Mean deviation score
1	.09	.52	.56	.99	-.49	.80
2	.90	.49	.53	.43	-.42	.75
3	.99	.51	.49	-.05	-.09	.84
4	.57	.37	.59	-.82	.10	.62
5	-.18	.23	.62	-.98	.38	.65
6	-.82	-.31	.66	-.57	.25	.80
7	-.98	-1.38	.71	.18	.35	.99
8	-.57	-.43	.70	.82	-.07	.82

^aRefers to the actual coordinates of the stimulus figures (Chapter 7).

Table 82

Hypothesis 2: Affiliative and Power Means
for the Within Patients Analyses

Figure	Affiliative dimension			Power dimension		
	Actual ^a stimulus coordinate	Mean behavior score	Mean deviation score	Actual ^a stimulus coordinate	Mean behavior score	Mean deviation score
1	.09	.65	.45	.99	-.35	.67
2	.90	.56	.51	.43	-.35	.84
3	.99	.62	.43	-.05	-.05	.71
4	.57	.23	.46	-.82	-.01	.70
5	-.18	-.07	.78	-.98	.11	.90
6	-.82	-.06	.64	-.57	.16	.76
7	-.98	-1.05	.82	.18	.46	.77
8	-.57	-.38	.89	.82	.03	.85

^aRefers to the actual coordinates of the stimulus figures (Chapter 7).

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BIOGRAPHY

Name: Karen Ann Sox

Birthdate: May 7, 1953

Birthplace: Los Alamos, New Mexico

Education:

H. S. Diploma	1968-1970	Los Alamos High School
B.A.	1970-1974	Arizona State University
Ph.D.	1974-1982	Duke University

Awards and Professional Experience:

1974-1977	United States Public Health Service Predoctoral Training Fellowship, Duke University, Durham, North Carolina
1977-1978	Psychology Technician, Psychodiagnostic Laboratory, Department of Psychiatry, Duke University Medical Center, Durham, North Carolina
1978-1979	Clinical Psychology Internship, Psychology Service, Veterans Administration Medical Center, Cincinnati, Ohio
1982-	Associate Membership, American Psychological Association

